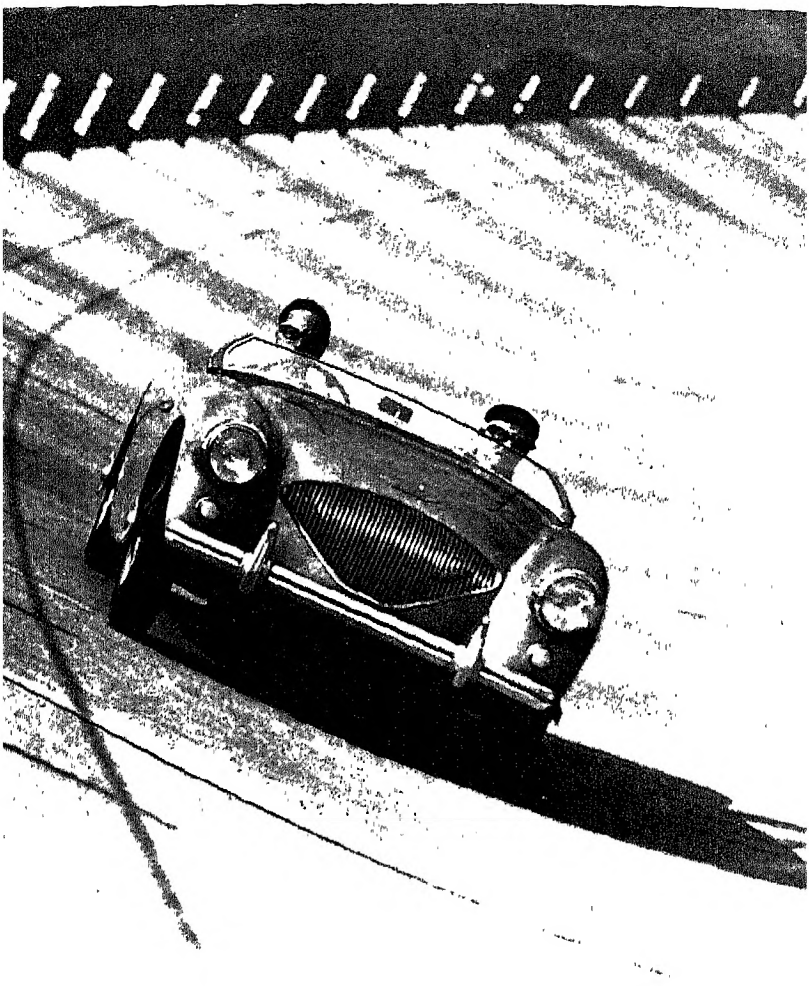
The Austin-Healey



The Austin-Healey

by Donald Healey
and Tommy Wisdom

Edited by Maxwell Boyd

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1931: In this year, Healey won the Monte Carlo Rally in a 4½-litre Invicta

1933: Once again the car for the Monte Carlo Rally was an Invicta but it ran off the road and hit a tree

1934: Healey joined Triumph and, in the Monte Carlo Rally, drove a 10-h.p. Gloria into third place overall

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PART I

HEALEY AND AUSTIN

BY

TOMMY WISDOM

1. Donald Healey: The First Fifty Years

Donald Healey is one of my oldest friends and I have driven with him in many sporting and record-breaking drives, so that I feel I am well qualified to write about the early achievements of one of our foremost designers of British sports-cars.

Donald Mitchell Healey was born and spent his childhood in the little village of Perranporth on the north coast of Cornwall. The time was the turn of the century; the county of Cornwall, on the western 'foot' of England, was far removed from the rest of the country, and motor-cars were strange beasts, not often seen, and regarded by most country folk with the utmost suspicion. But young Donald's father, an expert cyclist for many years, soon graduated to four wheels, and his son's earliest memories are of father chugging around the Cornish lanes and up and down the steep hills, mounted on a four-cylinder, often brakeless, Panhard-Levassor.

By the time Donald was fourteen, his motoring experiences included rides in several exotic cars of the day belonging to friends of his father's—a 30-h.p. Beeston Humber, a Prince Henry Vauxhall and an Austro-Daimler, the last two being examples of the finest sports cars of the period. The interest in the internal-combustion engine which young Donald showed coincided with the early development of aviation, and eventually he persuaded his father to let him leave school to become apprenticed to the Sopwith Aviation Company, whose tough little fighters scored heavily against the enemy during the First World War. Sopwith's airfield was at Brooklands, the historic racing circuit outside London, and during his time with the firm, Donald saw and was fascinated by the motor-race meetings held there regularly before the First World War. In spite of the attraction of aviation, the internal-combustion engine as applied to cars was beginning to cast a stronger spell over the young man.

Donald Healey spent the 1914–18 war years partly with Sopwith's, who became Britain's largest constructors of military aircraft, and partly with the Royal Flying Corps, forerunner of the Royal Air Force. Soon after enlisting, he was promoted to corporal because his talents included the ability to ride a motor-cycle. However, on his first journey he managed to ride his machine into a ditch with his C.O. in the sidecar! As it turned out, this episode did not seem to affect Donald's subsequent career, for he gained his 'wings' in 1916. After a spell on anti-Zeppelin home defence, he was posted to overseas night bombing, but following a flying crash in 1917 he was invalided out of flying service and put on to an uninteresting ground job. This, he says, 'cured my craze for aeroplanes'.

With his health still not up to scratch at the end of the war, Donald Healey returned to the more agreeable climate of Perranporth and opened a garage. After three years or so, when the business had become firmly established, he turned towards the competitive side of motoring and took part in many local sporting events driving an A.B.C., a post-war light sports-car with a 10-h.p. flat-twin, air-cooled overhead-valve engine. But his first real motoring exploit of note was an officially observed run from Land's End to John o'Groats, the most southerly and most northerly points of Great Britain. Driving an Ariel with a Swift 10-h.p. engine, another of the small cars of the nineteen-twenties which failed to survive, Donald recorded a fuel consumption of 52 miles per gallon, earning a certificate recording the feat from the Royal Automobile Club. In the same year, 1925, he took the Ariel to Brooklands and won a Gold Medal in a high-speed trial. The following year the Ariel car, made by the well-known motor-cycle manufacturers who still exist today, went out of production.

In 1929, Donald Healey ventured farther afield in his sporting exploits and entered the Monte Carlo Rally for the first time. Driving a Triumph 7-h.p., a small but hardy sports-car with which he had been successful in Britain during the previous twelve months, he was due to start from Riga, on the Baltic coast of what was then Latvia and is now Russia. But heavy snow made it impossible to get through to Riga, so he returned to Berlin and started from there instead. The snow continued all along the route, and the Triumph arrived at Monte Carlo two minutes outside the time limit. However, the following year, with his brother as co-driver and the same car, Donald bat-

tled his way through the snow and ice to finish in an overall position of seventh, the first British car to finish. As the absolute top speed of the rally car was 47 m.p.h., and the rally average 30 m.p.h., this was a far greater achievement than might be apparent at first.

Soon after the Monte Carlo Rally of 1930, Donald Healey was approached by Sir Noel Macklin, father of Lance Macklin, who features as a prominent Austin-Healey driver later in this book. Sir Noel asked if Donald would be interested in driving a works-prepared 4½-litre Invicta in the Alpine Trial of that year. Donald quickly said yes, starting a highly successful motor-sporting association which lasted for the next four years. In three consecutive Alpine Trials, Donald Healey and the Invicta won an Alpine Cup. In the Monte Carlo Rally there was even greater success, for they won the event outright in 1931 in spite of having to do complicated roadside repairs after hitting a telegraph pole in Sweden soon after starting. In 1932, Donald finished second in the rally and was once again the first British car to finish, but the following year, starting from Tallin in Estonia, where the thermometer plummeted to 40 degrees below zero, the Invicta went off the road on the route through Poland trying to avoid a runaway horse sledge. The car hit a tree and was wrecked.

The string of successes with the Invicta brought Donald Healey right into the front rank of British competition drivers, and because of his knowledge and experience of such events as the Alpine and the Monte Carlo he was in great demand as a consultant to various car manufacturers. However, in 1934, he joined the Triumph firm and was put in charge of design and experimental work. Naturally, he also drove for Triumph in competitions from this time onwards, starting an association which lasted up to the outbreak of the Second World War by winning the Light Car class of the 1934 Monte in a 10-h.p. Gloria, as well as being placed third overall. It was on this occasion that I joined Donald. We started from Athens, which had, and still has, the reputation of being the toughest kick-off point of all. In addition to all the usual rally equipment to help against bad-weather conditions, we also carried a gun and were quite prepared to use it, for a couple of years previously, in the Central European section of the route, bandits from the mountains had stopped a rally competitor, stripped him of everything and sent him off in his car wearing only his underclothes! Luckily nothing quite so drastic happened to us, nevertheless we did have an eventful drive with fog, ice,

snow and floods. The Athens route certainly lived up to its reputation. This was the first occasion on which a Triumph Gloria had been entered for the Monte Carlo Rally and, by being placed second, it wiped the floor with the expensively prepared French cars in the same class. This led to an unfortunate incident after the results had been declared, in which the French protested that such a small car as the Gloria could never perform so well nor go so quickly. Its Coventry Climax engine must be larger in capacity than was declared on the entry form, they protested. The idea, of course, was nonsense, as the scrutineers found when they came to examine the winning cars afterwards, and the protest, which was, in fact, a compliment to the Triumph, provided a good deal of extra publicity for the Gloria and its crew.

After the Gloria, for the design of which Donald Healey had been chiefly responsible, came the Triumph Dolomite, a sports-car with a 2-litre straight-eight engine which was heralded by the motoring Press as Britain's 1935 challenge to German and Italian sports models. Once again, most of the inspiration for the car came from Donald Healey, and after secret pre-release trials, I reported in my newspaper:

> It attained a speed of nearly two miles a minute on a guarded road. The acceleration is truly phenomenal and can only be likened to that of an out-and-out racing machine. It holds the road like a leech, steers wonderfully so that you could run over a coin placed in the road ten times out of ten at 80 miles per hour. The brakes are immensely powerful.

The Dolomite's first sporting event was in the Monte Carlo Rally of 1935. On this occasion, Donald Healey elected to start his run to the French Riviera from Umea, in Northern Sweden. Since the supercharged Dolomite was probably the fastest car in the event, and as the weather conditions were not so bad as to cause any great difficulty, both Donald and his co-driver, A. L. Pearce, were not only confident of a trouble-free run, they also reckoned they had a good chance of victory as well. Their optimism, however, was short-lived. After a thousand miles of driving Donald's car had become used to the steady whine of the supercharger. Then, suddenly, while cruising along the good, flat road near the frontier between Denmark and

Germany, the whine rose to a howl. Donald turned to Pearce and yelled, 'The —— blower has seized!' But before Pearce had time to reply, there was a frightening crash, and the Dolomite leapt into the air and turned completely round.

A few moments later Donald staggered unhurt from the wreckage, to find that as the car had started to run over a level-crossing without gates, a train had smashed into it. The rising note of the supercharger had, in fact, been the railway engine's warning siren! The front of the Dolomite was completely shattered by the impact, but the driving compartment escaped damage, as did the crew, apart from Pearce losing a tooth as he baled out in a hurry. Then, as if this was not enough, the two men were taken off by the police and locked up in the local jail until they agreed to produce a guarantee for the repair of any damage to the railway engine! Although this was the catastrophic end of Donald's efforts in the 1935 Monte, another Triumph, a Gloria driven by Jack Ridley, battled through to the Riviera resort, winning the Light Car class and being placed second overall out of one hundred and three finishers.

Undaunted by their experience the previous year, Healey and Pearce set out for Monte Carlo in a 2-litre Triumph once more in 1936. As in 1930, they started from Tallin and despite eight hundred miles of snow and ice, they finished eighth in general classification and were once again the first British car to finish. On this occasion, the Triumph crew witnessed a crash at a level-crossing between a train and a rally competitor exactly similar to their own accident the year before, but this time the driver did not escape uninjured as Healey and Pearce had. Nowadays, fortunately, nearly every level-crossing in Europe has its gates, but even so, most Monte Carlo Rallies produce their crop of near-misses when competitors try to dodge beneath the gates as they are closing, in order to avoid delays caused by slow-moving goods trains!

Donald Healey's competition successes driving Triumphs during the nineteen-thirties also included several more Alpine Cup awards. Soon he became Technical Director of Triumph and, on the outbreak of the Second World War in 1939, he continued with the firm doing Air Ministry work. Naturally, motoring as a sport came to an abrupt halt. The Triumph factory was engaged on the production of Hobson aircraft carburettors, and during this time Donald had valuable experience of working with Laurence Pomeroy, designer of the

famous Prince Henry and 30/98 Vauxhalls and father of the present Laurence Pomeroy, today one of the best-known technical motoring journalists in Britain. During the war, however, Donald moved from Triumph to the Humber Company, where he was engaged on rather more interesting work to do with armoured cars and where he became associated with two other motor engineers, Sampietro and Bowden.

At that time, like everyone else in the temporarily interrupted motor industry, Donald's thoughts were concerned with ideas about what form cars might take when the war was over. He found Sampietro and Bowden were equally interested, and between the three of them they worked out on paper the basic plan for a light-weight, high-powered, close-coupled sports saloon in the same class as similar European models. As soon as VE Day came in 1945, they got down to the job of building a prototype from the design, and in a remarkably short time, considering their somewhat limited resources, finished it. The Donald Healey Motor Company was thereupon formed to produce the car, and modest factory space was found on a trading estate on the outskirts of the sleepy little Midland country town of Warwick, between Stratford-on-Avon and Birmingham. There was little money in the Healey till for going into the car production business, but they reckoned they had a good product to sell and that if they played things carefully and managed to break into the American market, they would get by. If enthusiasm counted for anything, there was no shortage of that at the Healey Motor Company.

When the new Healey first appeared in 1946 it created quite a sensation. Beneath the aerodynamically-shaped body of aluminium alloy sheet on a wooden frame lay a 2·4 Riley engine, which, tuned and with a modified induction system, gave 104 b.h.p. at 4,500 r.p.m. Based on a chassis frame of sheet steel, with an 8 ft. 6 ins. wheelbase, the car weighed little more than a ton, and wind-tunnel experiments showed that the streamlining had reduced wind resistance by as much as 45 per cent. This was equivalent to raising the engine power by between 70 and 80 per cent. The result was that the Healey would do nearly 80 m.p.h. on the third ratio of its Riley gearbox, and over 100 m.p.h. in top. As a powerful demonstration of its capabilities, a perfectly standard Healey achieved a timed speed of 104·65 m.p.h. on the Milan–Como Autostrada in Italy. Consequently, it was hailed quite correctly as the world's fastest 'off the peg' motor and the fastest British car in production.

Production of the Healey started at Warwick in the autumn of 1946 and, despite all the delays and frustrations of manufacturing in the days immediately following the war, output was maintained. It was not a very large output—only some five models a week from the payroll of less than forty workers—but the production was significant enough to have created a steady demand, and record-breaking runs, like the one in Belgium in 1947 of 110·8 m.p.h. over the flying mile, helped to keep it in the public eye. Then there was the sporting side, to which Donald Healey returned as soon as motor racing and rallying commenced on an international scale after the war.

In the 1948 Mille Miglia, the Italian 1,000-mile road race, a Healey saloon purchased only a few days previously by Count 'Johnnie' Lurani and driven by him, won the Touring Class, the first time in the event's long history that this had been achieved by a British car. In addition, Donald and his son Geoffrey, driving an open Healey, came in second in the Unlimited Sports Car Class, finishing ninth in General Classification as well, despite hitting a dog at over 100 m.p.h. en route. 'An historic achievement' was how one magazine described it.

Later in 1948 a standard Healey saloon raised the eyebrows of the motoring world once more by completing 103·76 miles in one hour from a flying start on the Montlhéry circuit outside Paris. And in the Mille Miglia the following year, Geoffrey and I won the Touring Class, while Donald, co-driving with Geoffrey Price, now Sales Director of the Healey Car Company, took fourth place. Success also came in Alpine Rallies and in other events of various kinds. Healey cars, built in the back-street factory in Warwick, had arrived, and 'le patron', world famous already as a driver, looked as though he would soon be equally world famous as a manufacturer.

October 1948 saw the introduction of a sleeker, more 'Americanized' version of the Healey, an open car known as the 'Sportsmobile', with a top speed in the region of 105 m.p.h. from the 2·4 litre Riley engine. The older drophead Roadster model and its saloon continued in production, the latter being bodied in a variety of shapes by Elliot, Duncan, Tickford and Abbott. And then, towards the end of 1949, there appeared on the market the famous Healey Silverstone—the rugged, rakish, stark, two-seater competition car, which had made its racing début that summer in the hands of French ace Louis Chiron, Tony Rolt and myself on the English circuit after which it was named. With its narrow bodywork, restricted leg-room and its wheels at each

corner, protected by motor-cycle-type mudguards, its lack of side-screens and its primitive canvas hood, the Silverstone was no car for taking the girl friend out on a date. But as a strictly functional high-performance sports-car, with pep and road-holding counting for more than comfort, it was ideal and the best that had appeared on the market since the war. Amongst the sporting enthusiasts it made an immediate and very favourable impression.

The Healey Silverstone was based on the same chassis as the other Healey models and had the same four-cylinder 2½-litre Riley engine. But the single-shell body of aluminium alloy, built on the stressed-skin principle, reduced the total weight of the car to considerably less than one ton. Thus the power output of over 100 b.h.p. gave the car a very useful top speed above 100 m.p.h. Many Silverstones were bought by enthusiasts both in Britain and in the United States, where the devaluation of the pound brought them well within the financial reach of scores of sports-car club members. They were raced successfully for some years on circuits all over the United States, and kept on appearing for a long time after they were officially considered to be obsolete.

Donald Healey's next move to break into the American market with a fast touring car with sporting characteristics was to come to an arrangement with Nash, the United States manufacturers, for the supply of their six-cylinder engines. These he fitted into a frame based on the Healey Silverstone chassis, added a new body of three-seater width, and re-shipped for sale across the Atlantic. In this way, Donald gave the Americans a body shape they liked, together with an engine they already knew well and preferred to the four-cylinder Riley unit. Moreover, with Nash spares available over the entire country, the vexed question of service and repairs was resolved to a considerable extent.

The Nash-Healey was built at Warwick and competed in several Le Mans races with more than reasonable success, proving to any disbelievers that the cars were far more than just fast tourers. They took 4th, 6th and 3rd places overall in the years 1950, 1951 and 1952.

The last of the line of Warwick-built Healeys, stemming from the original prototype planned during the closing months of the war, was the 3-litre drophead developed from the Nash-Healey. The car using a 3-litre Alvis engine had a body constructed in Birmingham and

finished at Warwick. Pinin Farina constructed a series of bodies for Nash on Nash-Healey chassis, supplied from Warwick. Few examples of this model were built and fewer still remain to the present day. Of the Riley-engined cars, however, and especially the saloons, a surprising number can still be seen on the roads of Britain, enthusiastically driven and lovingly maintained. The fact that they retain their value and still command a relatively high price on the second-hand car market is a tribute to the skill put into their design and the workmanship put into their construction.

At about this time, the first thoughts which later developed into the Healey 'Hundred' were beginning to form in Donald Healey's mind, and the story of this car from 1951 to the present day is told by Donald Healey himself in the second part of this book.

It has been a great pleasure to me to tell the story of Donald's first fifty years, for I count him as my greatest friend and his cars the finest I have ever driven.

Water Sports

No story about Donald Healey would be complete without mentioning his latest activity—the marine 'Austin-Healey', or, in other words, the Healey Sports Boat. In 1954, Donald re-caught the water-skiing bug which had bitten him badly some years previously, and while gliding effortlessly over the sparkling blue waters of the Bahamas it occurred to him that there would be a market in many parts of the world for a small, runabout motor-boat, designed principally for towing water-skiers, but which could also be used by anyone who required exhilarating, but reasonably cheap water transport.

Returning to Warwick, he and his sons, Geoffrey and Brian, drew up a design for a boat that could be produced in quantity by workers at the factory unskilled in boat-building, and which would sell at a price comparable to that of a small car. The result was the sleek, neatly proportioned Healey Sports Boat, which made its London début in January 1958, and was advertised as being 'as thrilling on the water as the famous Healey sports car is on land'.

Building a motor-boat seemed to be a pretty revolutionary departure for a small company whose factory was plumb in the middle of England, about as far from the sea as it could be. But little things like that did not worry the Healeys, and, anyway, the heart of the boat, the engine, came straight from a car, so it was really only a matter of putting a different sort of body around it! For an engine they used the B.M.C. 'B' Series unit of four cylinders and 1,489 c.c., as fitted to the M.G.A. sports-car, modified it in certain respects to make it more suitable for marine work and renamed it the Austin-Healey 55 engine. The most obvious advantage of using such a well-known power source was that it could be serviced through B.M.C. agents all over the world. Naturally, the boat itself could be sold in the first place through the B.M.C. distribution network.

From the outset, the Healey Sports Boat, which was proved capable of reaching a top speed of over 30 m.p.h., caught on and sold well. A workshop at Warwick was given over to the new company, Healey Marine Limited, where about twenty boats a week are being built, these going to water-sport enthusiasts all over the world. What a pleasant way of living—drive down to the sea or a nearby lake at the week-end in your Austin-Healey '100-Six', and then spend a couple of days messing about on the water in your 'Austin-Healey' boat. And the Sports Boat is no stark craft either. The main construction is of marine plywood on a mahogany frame, with a polished teak-faced deck. There is a wrap-around perspex windshield, attractive padded upholstery, car-type steering, a reverse gear and a full range of instruments, plus a whole list of other 'extras', and the cost is little more than that of a small English car.

The Healey Team

Chairman and Managing Director: Donald M. Healey.
Deputy Managing Director: P. F. Green.
Technical Director: Geoffrey Healey.
Sales Director: Geoffrey Price, in charge of sales and service since the inception of the company.
Works Director: Robert Boardman, in charge of purchasing, contracts and works organization.
Secretary and Accountant: Joseph Cooper.
London Sales Manager, Healey Car Sales Ltd.: James E. McManus.
Healey Marine Ltd.: Brian Healey.

2. The Austin Story

Herbert Austin, first child of Giles and Clara Austin, was born in the country village of Little Missenden, Buckinghamshire, about thirty miles outside London, on 8th November 1866. His father and his grandfather were farmers, his mother a naval captain's daughter. His home atmosphere was one of open-air health, common sense and hard work. His schooling in the north of England, where the family went to live in 1871, was thorough, in the tradition of the nineteenth century, but uneventful, except that the lad showed an early aptitude for sketching and, presumably, an alert and observant eye for detail.

At sixteen young Austin went to Australia, and in Melbourne joined an uncle who was works manager of a general engineering firm. Here he learned his craft the hard way, but proved to be a willing and clever pupil with an inventive turn of mind. During the following eight years he worked for six different engineering firms in Australia, continually acquiring experience and self-assurance. At the age of twenty-one he married, and six years later he was asked by Frederick Wolseley, by whom he was then employed, to return to England to supervise the manufacture of sheep-shearing equipment.

Austin worked in Birmingham, in a new factory Wolseley had built for the job. The business prospered; larger premises were taken over in 1895, and in the same year, working on it in his spare time, Herbert Austin built his first motor-car, a three-wheeler with tiller steering. By this time motoring had entered its lusty infancy, and Austin's fertile mind was producing a steady stream of ideas, to which this new form of transport gave great stimulus. The following year, 1896, two years after the world's first motor race, he produced his second car, which was exhibited in London.

Austin's experiments continued, and in 1900 he built a four-

wheeler with a horizontal single-cylinder engine. He entered it for the 1,000-mile trial, run by the then Automobile Club of Great Britain (now the Royal Automobile Club). It won first prize. In 1901 the Wolseley Sheep Shearing Company expanded its activities and, taking advantage of the capabilities of its brilliant employee, set up the Wolseley Tool and Motor Car Company. A factory was taken over in Birmingham and Herbert Austin was installed as manager. Under his direction, the Wolseley cars of the next few years became internationally famous, but in the early summer of 1905, after a dispute with the directors, Austin resigned and looked around for somewhere to start on his own.

Getting on his bicycle, Austin pedalled around the Birmingham district searching for premises. Soon he came to Longbridge, seven miles outside the city, where he found a small derelict factory once used for the manufacture of metal boxes. On a main road and next to the railway, it was just what was wanted. And situated in the middle of the country, there was plenty of room for expansion, too. Other problems his friends warned him about, such as shortages of labour and materials, would solve themselves. All he needed now was financial backing.

He valued the land, works and fixtures at £10,000, and estimated that £7,900 would be required for additional machinery, plus an expected weekly outlay of some £600 to cover materials, wages and other expenses. It would be four months before the first chassis could be produced, and thereafter the rate would be two a week. He estimated that after the first full twelve months' production he would have just over £8,000 in hand. Austin was quite clear about the design of his first car; in fact, the plans were already drawn up. With everything cut and dried, his business-like approach appealed to the right people and he got his money, an advance of £20,000 from one source, while financiers and others rallied round with additional help. The Austin Motor Company was born.

On 17th November 1905 the Motor Show opened in London. Herbert Austin and his two draughtsmen (A. J. Hancock and A. V. Davidge), complete with high hopes, enthusiasm and a sheaf of blueprints, sought orders and got them. On paper, the first Austin was described as a 25–30-h.p. touring model with a 4½-in. bore and a 5-in. stroke, magneto and coil ignition, a four-speed gearbox and a chain-driven rear axle. Only materials of the highest class would be

used in its manufacture; it was expected that the first vehicle would be delivered at the end of March 1906 at a cost of £650.

After the Show it was hard work and long hours at Longbridge to get the first car on the road. Yet before March it was ready for trial and a few personal friends of Herbert Austin were invited along to witness the historic event. It was a moment to be remembered. With the owner in control, the engine was primed, coaxed and bullied. Suddenly it erupted and belched out clouds of blue smoke—too much oil had been used in an anxious effort to avoid a seizure. Then oil and petrol leaks appeared, and the two workmen responsible were sacked on the spot. Contemporary reports say that Herbert Austin enveloped the scene with an output of fuming equal to that of the car!

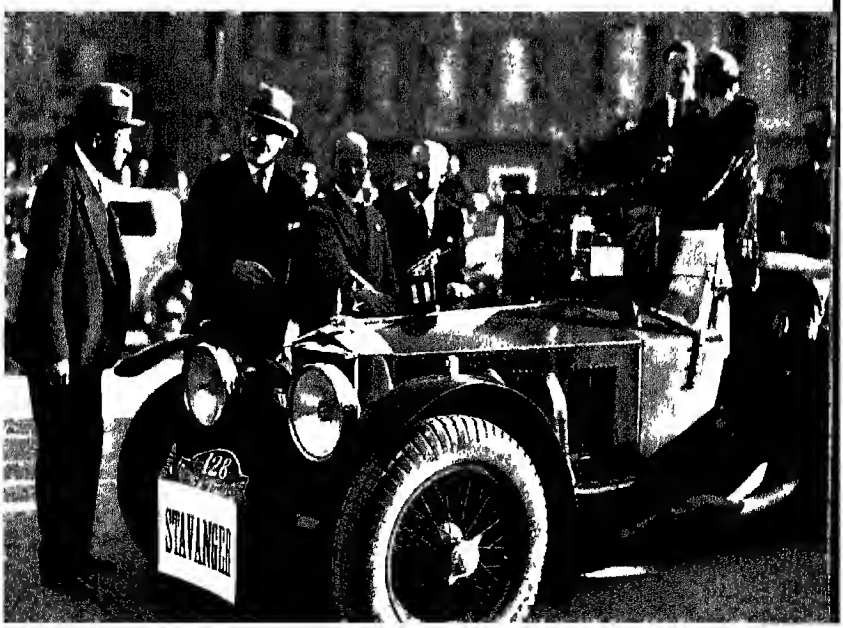
But in the end all was well. The car left the workshop, reached the road, made a very successful, if dusty, run and the workmen got their jobs back. On 26th April a luncheon was given at Longbridge in honour of the new model and to celebrate the official opening of the factory. Skilled workmen found their way to Longbridge, and in the first year 270 of them turned out 120 cars. Expansion and extensions followed, and other cars were added to the range. Austin coachwork, with its large selection of phaetons, limousines and landaulets, came to be admired and respected as much as the dependability of the chassis. Herbert Austin was thorough in everything he did; it is said of him at this time that he could do any job in the factory and knew the position of every machine. His men respected and admired him and work went on at full speed.

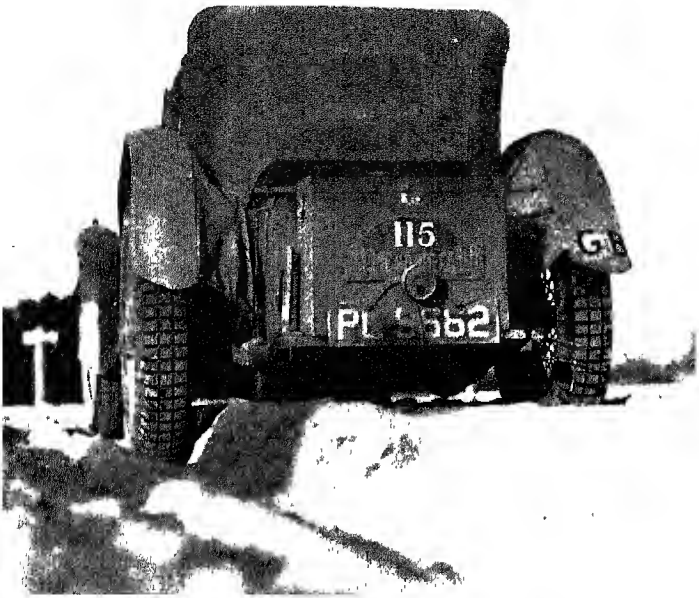
In 1908, three special 100-h.p. Austin racing cars were built and entered for the French Grand Prix of that year. Two of them, driven by J. T. C. Moore-Brabazon (now Lord Brabazon of Tara) and Dario Resta, finished in 15th and 16th places respectively, having given a very creditable performance. At Brooklands, a private sportsman named O. S. Thompson achieved success after success with a modified 25–30-h.p. model he called 'Pobble'.

By 1910, nearly 1,000 workers were employed at Longbridge and business was so good that a night-shift was found necessary. The Austin range included seven separate models, and the sales organization extended to Australia, New Zealand and South Africa. Further extensions were made to the factory and an output of 1,000 cars a year was planned. The interests of the company spread to industrial and marine engines; the production of a lorry in 1913 marked activity

1929 In Donald Healey's first attempt at the Monte Carlo Rally he drove a 7 h.p. Triumph but finished just outside the time limit because of adverse weather conditions

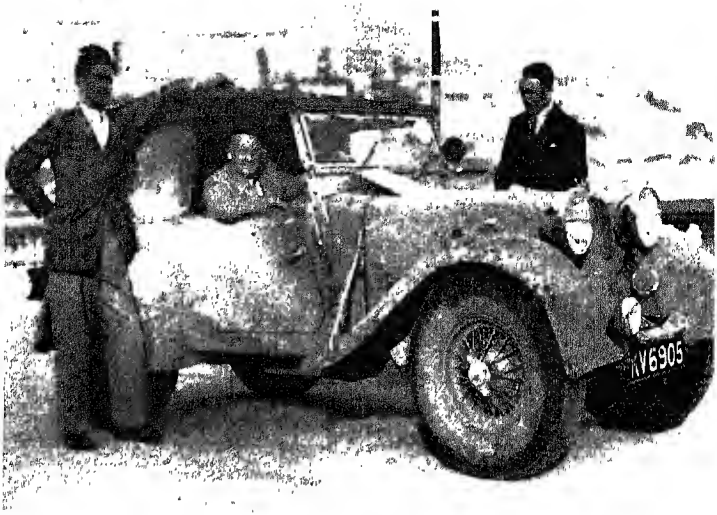
1931 In this year, Healey won the Monte Carlo Rally outright in a 4½ litre Invicta, despite hitting a telegraph pole shortly after starting from Stavanger in Norway





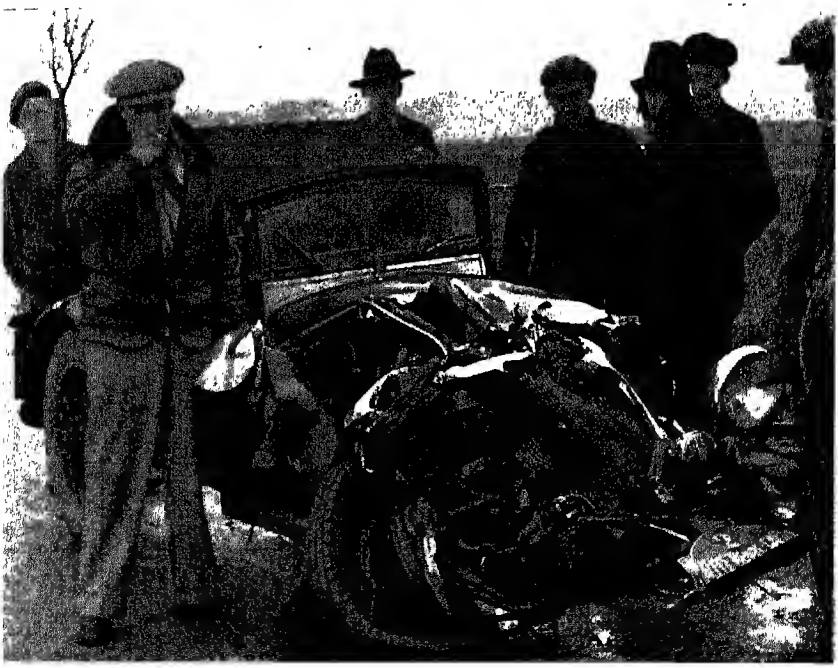
1933: Once again the car for the Monte Carlo Rally was an Invicta, demonstrating here an even keel in rutted snow. But the run finished soon after it started when the car ran off the road and hit a tree

1934: The 2-litre Triumph Dolomite was built to challenge contemporary ended in disaster near the Danish-German frontier when the Dolomite was hit neither Healey nor his



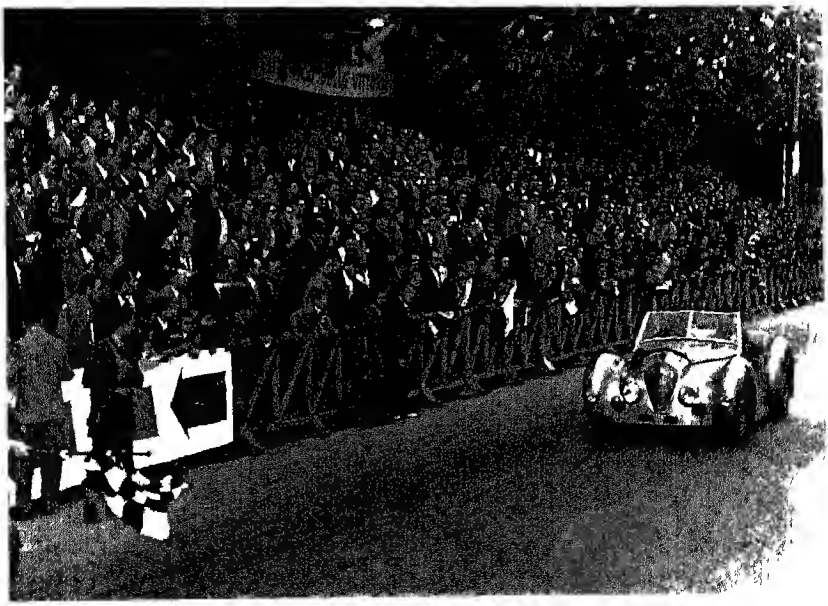
1934: Healey joined Triumph as design chief and, in the Monte Carlo Rally, drove a 10-h.p. Gloria into third place overall and into first place in the Light Car Class

Continental sports-cars. But Donald Healey's Monte Carlo Rally that year by a train on an ungated level crossing. Despite extensive damage to the car, co-driver was hurt



1948 For the first time in the history of the Mille Miglia, a British car won the Touring Class of the Italian classic. The Healey's driver was Count 'Johnnie' Lurani, here passing the flag at Brescia

1949 In the Mille Miglia of this year, Geoffrey Healey and Tommy Wisdom won the Touring Class at a new record speed of 68·5 m.p.h., two minutes ahead of an Alfa Romeo



in another direction, and a coach shortly afterwards in yet another. Early in 1914, the company changed from private to public ownership, the capital was increased to £250,000, and Herbert Austin reckoned that a huge sales increase would result from this expansion. Everything seemed to be set fair, but the situation changed overnight. The First World War began.

Immediately, Longbridge turned over to making guns, shells, aircraft, aero engines, military trucks and other equipment and supplies for the armed forces. Further expansion continued so that the factory could turn out more and more. And in the centre of everything, directing what had become a huge organization with efficiency, energy and enthusiasm, sat the country farmer's son. In 1917 he was created a Knight of the British Empire, becoming Sir Herbert Austin. But despite the effort of working for the war effort, Austin laid plans for the peace which was to follow, and in 1918 he was ready to go ahead with building cars once more.

He decided to concentrate on the production of a single model of 20 h.p. which, he thought, would be an economic proposition and supply a steady demand at home and overseas in the difficult times to follow while the world settled down again. Its price, considerably cheaper than the equivalent pre-war model despite devaluation, created a sensation. And with their wartime experience of building aircraft, the company also entered that market for a short time. But the wave of economic misfortune that followed the war and swept away many motor manufacturers also affected Austin, and by 1921 they were really in trouble financially.

However, a year later came the 7-h.p. infant prodigy. This was the real answer to the problem of the day—how to increase business by increasing the number of motorists, and it certainly helped to turn the tide at Longbridge. The company paid off all their debts, and from that time onwards they never looked back. The Austin Seven was received at first with laughter and ridicule, and few people took it seriously. Not so Sir Herbert Austin. He had conceived the little car entirely on his own and, in fact, the drawings were all prepared at his home only a mile from the factory. Despite all criticism, he knew he had a winner.

The engine, with its 2½-in. bore and 3-in. stroke, developed 10 b.h.p. at 2,400 r.p.m. and was one of the smallest four-cylinder power units then made. In many ways the Seven was a large car in miniature,

but perfectly scaled down; it had an overall length of 8 ft. 9 ins., but it still provided seating for four. When the first Seven was completed, Sir Herbert took his place at the wheel just as he had done seventeen years before when the first Austin of all was ready for its christening, but this time there was no fuming or commotion. The car left the workshop and motored briskly up the road, the broad shoulders and bowler hat of its creator squarely silhouetted at the wheel. Motoring for the masses—a new era—had begun.

The Seven was exhibited at the London Motor Show in 1922 at a list price of £225. People who had previously considered motoring far too expensive for them, examined it, and the more adventurous bought one. The car exceeded their wildest expectations. Motoring journals published enthusiastic reports. A. C. R. Waite, who had won sporting events with the 20-h.p. car, began racing the Seven. It won at Brooklands and at Monza in Italy. In fact, the car became a fashion, and orders for it poured in from all over the world.

By 1927, after yet more extensions, the Longbridge staff of 8,000 was producing 25,000 cars a year of three models—the 20-h.p., 12-h.p. and 7-h.p., the first two being available in a variety of body forms, including saloons, which were now beginning to supersede the open tourer. The next few years covered a period of consolidation and steady progress. Sir Herbert Austin was not the type of man to change the design of his cars unnecessarily, but whenever he thought an improvement could be made, he made it. But it had to be an improvement. Change for change's sake he would never accept. Above all, Austin was a thoroughly practical engineer.

The first six-cylinder Austin appeared in 1927. By 1930, the Longbridge output had reached 1,000 cars a week, and the Seven had become the most popular small car in the world. It was being made under licence in the United States and in certain European countries, and it continued to astonish motorists with its exploits. In 1928, a Seven climbed Ben Nevis, Scotland's highest mountain, in 7 hours 28 minutes; later it climbed Table Mountain, South Africa, in 10¾ hours. Third and fourth in the Ulster International Road Race of 1929, it won the 500 Mile Race at Brooklands a year later. The following year at Daytona Beach, Sir Malcolm Campbell achieved the commendable speed of 94·03 m.p.h. with a Seven, and it later exceeded 100 m.p.h. at Brooklands with L. Cushman at the wheel, being the first 750-c.c. car to achieve this speed in England. Thus did the Austin

Seven carve its own little niche in British motor-sporting history during the nineteen-thirties. And recognition of the car's achievements came to its creator in 1936, when Sir Herbert Austin became Lord Austin of Longbridge.

There seemed to be no cloud in the Longbridge sky during those happy, prosperous years of the nineteen-thirties. The factory buildings, now covering a hundred acres, hummed with activity and the order books were full. Austin cars were in constant demand and their good reputation was world wide. Yet there was a cloud—the approach of another world war. It must have been with a very heavy heart that Lord Austin accepted Chairmanship of a Government scheme for aero-engine factories. The last war had robbed him of his son, killed in action, and its aftermath had very nearly wrecked the organization he had striven so hard to build.

But the war was still in the future, and 1937 saw the introduction of an improved Seven and various other models of 10-h.p., 12-h.p. and 14-h.p. On the racing circuits, the latest version of the Seven, with its twin-overhead-camshaft engine producing 116 b.h.p. at 9,000 r.p.m., was sweeping all before it in its class—and in several other classes as well.

In March of the following year, a certain Mr. L. P. Lord joined the Austin Company as Works Director. At the early age of forty-two he had made a name and reputation for himself as boss of the Morris, Wolseley and M.G. companies. Lord's first job was to bring Austin back into the commercial-vehicle field. This he did with two trucks which were announced in 1939. They were an immediate success.

But 1939 also brought the war for which the Austin factories had prepared themselves. In fact, by the time war was declared, military equipment was already leaving some of the Longbridge production lines. The variety of items produced by Austin during the war was enormous, as also were the quantities. Over 1¼ million rounds of armour-piercing ammunition, twice as many ammunition boxes, half a million jerricans, four- and six-wheel trucks, light and heavy bombers, aero-engines, gliders and fighters. They built nearly 8,000 Stirling heavy bombers. A mere 100,000 suspension and driving gear units for Churchill tanks was considered almost a sideline. And one Austin ambulance, captured at Dunkirk, served the Wehrmacht well on the Russian front before being recaptured!

Once again, Lord Austin's foresight in building his original factory

at Longbridge, outside the city of Birmingham, paid off. Apart from one isolated daylight raid, German bombers left it entirely alone to get on with its job. If the factory had been in the industrial areas of Birmingham it would have been quite another story. But, at the height of Hitler's worst attacks on Britain, Lord Austin died—on 23rd May 1941—after a short illness. He was succeeded by E. L. Payton, who retired four years later, whereupon Leonard P. Lord became Chairman and Managing Director to lead the company into the first rough, tough years of peace—years which looked as though they might be rougher and tougher than those which nearly wrecked the company in 1918–21.

The first post-war model to appear was the Ten. Naturally, it was almost identical with its 1939 counterpart, but detail design refinements, the result of wartime experience, gave it improved performance and reliability. However, shortages of material prevented an immediate return to pre-war standards in some respects. For quite a time, the Ten was supplied with a spare wheel minus a tyre, and where colours were concerned customers had a Henry Ford choice—anything provided it's black! Soon the Eight saloon followed the Ten, and then came the Twelve and Sixteen. The latter two cars were identical, but whereas the Twelve had the pre-war four-cylinder side-valve engine of 1,535 c.c., the Sixteen had a brand-new four-cylinder overhead-valve unit of 2,199 c.c. The performance of the Sixteen was extremely good and, in a sense, it was to set the pattern for post-Second World War Austins in the same way as the 20-h.p. had in 1919.

Meanwhile, at Longbridge the factory was being revolutionized. As soon as machines were released from Government work, they were modernized and repositioned for flow production. The old belt-driven machines lined up rigidly beneath long lines of shafting and pulleys were discarded for the neater, simpler, and more efficient and flexible individually powered units. The impact of this change was most noticeable in the engine factory, where an entirely new conception of production was put into practice. All the parts required for engine assembly were gathered in a store, placed in a container and sent to the assembly bay. As soon as the engines were built, they were run-in at a steady speed and flushed out with filtered oil. Apart from being far more efficient than the old methods of assembly, the saving in space, time and money was enormous.

It was the same everywhere at Longbridge. The factory was being subjected to the biggest reorganization it had ever known. Any person who thought he knew the layout inside the buildings could be out of date in a week, while suppliers who had coped fairly comfortably with the demands of wartime, found themselves awake at nights wondering how to keep up with Longbridge. Statistically, when the millionth Austin was produced, it represented one week's work by eight men. In 1926 it took sixteen men a week to build a car, and in 1910 it took a hundred and four men to do the job.

In 1947 Leonard Lord began his export onslaught. Britain badly needed dollars, but no one thought that they could be earned by selling cars to the United States. Lord did not agree, and after examining the American market first-hand, he decided to market the new Austin A40 Devon saloon over there. He also planned an effective spares service by which Austin parts would be flown anywhere in the country within twenty-four hours. At Longbridge, production was rising. The A40 replaced the 8-h.p., 10-h.p. and 12-h.p. models, but the 16-h.p. continued in production alongside the luxury Sheerline and Princess. At the first post-war London Motor Show, in 1948, there appeared the A70 Hampshire and the A90 Atlantic Convertible—and with this latter car, the seed that grew eventually into the Austin-Healey was sown.

Since that time, Austin has gone from strength to strength. New production and export sales records have been set each year, until now the British Motor Corporation as a whole is the second largest exporter of motor vehicles in the world. But mention of B.M.C. is anticipating the story.

Throughout 1948, 1949 and 1950, the Longbridge engineers were pursuing even further their plans for increased production efficiency, and in 1951 a huge new car-assembly building was opened, which embodied all the latest electronic devices for putting cars together more quickly, more efficiently and more cheaply. With its four assembly lines it had an output potential of one vehicle every forty-five seconds and provided first-class working conditions for the employees.

The 1950 Motor Show brought the announcement of the A70 Hereford, successor to the Hampshire. Twelve months later came the A30, the post-war Seven, to be followed by the A40 Somerset, successor to the Devon. Then at the 1952 Show there appeared the Healey 'Hundred', based on an Austin engine and Austin components. The fuller

story of this will be told in the next chapter, as will the tale of how Austin came to build it in large quantities. It is sufficient to say here that Leonard Lord made one of the most astute moves of his business career when he decided on the spur of the moment to produce the 'Hundred' at Longbridge, for with this car Austin export sales, and especially those to the United States, rocketed to heights unknown, or undreamed of, before.

Shortly before the Austin-Healey arrived on the scene, the merger between Lord Nuffield's car manufacturing organization, headed by Morris Motors Ltd., and the Austin Company was announced. For a long time such an amalgamation had been discussed and rumoured. Now, the British Motor Corporation, as the new set-up was called, amassed the production facilities of Austin, Morris, Wolseley, M.G. and Riley, and gave two of Britain's leading manufacturers the opportunity of pooling their years of experience to give the world public even better motoring at even better prices. At the group's factories at Cowley, Coventry and Birmingham, as well as at Longbridge, huge new reorganization schemes were put under way to streamline production with the same efficiency and speed that had characterized the solving of the immediate post-war problems. Automation on a large scale and other modern car construction techniques in which Britain had lagged somewhat behind America, were introduced throughout the whole organization.

New models continued to appear, keeping the famous names of their particular *marques*, although standardization of components for the sake of increased production resulted in some B.M.C. family similarities. The one highly individual model was the Metropolitan hardtop, produced in association with Nash especially for the United States market. However, standardization at least resulted in a markedly better spares service—if the same 1½-litre engine was found in anything up to eight models at the same time individuality might be lost, but at least it meant that the owners of all these models would have a minimum of difficulty finding spare parts, while the garages would only have to carry stock for a single power unit.

During the past few years, Austin, as part of B.M.C., has gone from strength to strength under the guidance of the brilliant young man who arrived from the Nuffield camp twenty-one years ago. As Sir Leonard since 1954, when he received the Knighthood of the Order of the British Empire, Lord is now Executive Chairman of both

the British Motor Corporation and the Austin Motor Company, having at his right hand Mr. George Harriman, C.B.E., Deputy Chairman and Managing Director. Lord Nuffield himself has retired to watch from the sidelines as the motor empires founded by himself and his great friend, Herbert Austin, produce a range of some twenty different passenger vehicles of all sizes, types and kinds, which sell in virtually every country of the world where there are roads to run them.

PART II

THE STORY OF THE AUSTIN-HEALEY

BY

DONALD HEALEY

3. The Austin-Healey 'Hundred'

The First Twelve Months

Some motor-cars arrive before the public with a slightly self-conscious, half-ashamed whimper, as though they had not quite convinced their manufacturers that they should have appeared at all. The majority are presented with fanfares and superlatives, which their publicity men hope will sufficiently impress the public that any shortcomings will not be noticed, or at least be disregarded. Somewhere between these two categories lie the select few cars which appear almost unheralded by their builders, but which, within a short time, are hailed on their obvious merits alone by the Press and critics alike, who dip into the publicity men's bag of superlatives for words with which to pepper their copy. The Austin-Healey 'Hundred' belonged in the latter bracket. It takes an outstanding motor-car to make hard-boiled journalists throw around words like 'exceptional' and 'sensational'. But that's what they were saying about the 'Hundred' the day after it was unveiled.

In the early nineteen-fifties, Great Britain was in the throes of an 'export or starve' drive. Fighting the Second World War had left the national economy in such a perilously weak state that the country could buy virtually nothing abroad without first earning sufficient hard currency by export to pay for it. That word 'export' plagued the British consumer market. Every form of luxury goods was for overseas sales only, and cars were at the top of the luxury list. Not only that, they were dollar-earner No. 1, so motor manufacturers did everything they could to inveigle their products into the United States, and entice the dollars out.

The advent of the Jaguar XK120 in 1948 had made the United States sports-car conscious. Dollar sales had exceeded even the Jaguar factory's own expectations, and the cars were being snapped

up by eager fans far more quickly than they could be built and shipped. This set me thinking seriously about producing a very fast everyday road car with genuine sporting 'characteristics', capable of 100 m.p.h., which would also be exceptionally cheap to buy, and easy and economic to maintain. If I produced the right product, I was sure there would be a big American market for it.

With its reasonable price and high performance, the Jaguar had already altered the whole concept of sports-car motoring which had previously centred around the maxim 'm.p.h. means money'. Following an extensive tour of the United States in 1951 to assess the potential sports-car market there, I decided I could take the Jaguar idea a step further without sacrificing reliability, stamina or controllability—the three virtues which must accompany power in any sports-car if it is to be successful. I decided I could do it more cheaply too, simply by basing the design of my car on certain well-tried components already in mass-production for other vehicles.

So it came about that in the first days of 1952, the drawing offices and workshops of the Warwick factory became hives of industry, and the first prototype of the revolutionary new Healey grew from pencil lines on sheets of paper, worked out by my son Geoffrey and myself, to shape and substance on the floor. We started by choosing an engine, for in any sports-car this is not only where the power comes from, but where most of the money goes to. I examined the whole British motor industry, searching for a good, well-proven, reliable, easy to maintain unit capable of producing a b.h.p. figure not too far below 100. It had to be in large-scale production already for two reasons—economy of initial cost, and availability of spare parts and service facilities over as much of the world as possible. I wanted to be quite certain that if a sports-car fan in Timbuktu bought one of my new cars, he would be able to have it repaired and serviced there without delay.

Eventually my choice fell on an engine on which I had had my eye for some time as a possible sports-car power source. This was the sturdy four-cylinder Austin A90 overhead-valve pushrod unit of 2,660 c.c. giving 90 b.h.p. at 4,000 r.p.m., and used in the then current A90 Atlantic drophead and hardtop models. Introduced in 1949, the Atlantic launched itself in the United States by making an impressive collection of American Stock Car records at the Indianapolis Speedway. The car ran for a solid seven days and seven nights, averaging 70·54 m.p.h. throughout, including all stops for refuelling and changes

of driver, and covered 11,850 miles at a fuel consumption figure of 17 m.p.g. This feat not only proved the engine's worth, it also made sure the American public knew of the car's existence. This prior knowledge, I felt, would be a considerable help when it came to launching my own car in America.

Having found an engine which appeared to satisfy all my exacting requirements, my next move was to borrow the wishbone and coil-spring front suspension of the Austin (a breakaway from the trailing arms favoured previously at Warwick), the semi-elliptic at the rear and the spiral bevel final drive. All these components from the Austin factory were cheaper than the Healey components in use at the time. Also used was the Austin gearbox, but with three forward ratios instead of the four of the A90, the first speed being locked out. However, gear compensation was made by the use of an electrically-operated Laycock de Normanville overdrive on second and top, giving a total of five effective forward speeds—9·28, 5·85, 4·56, 4·125 and 3·28 to 1. The gear change was operated by a central lever, at a time when such 'sticks through the floor' were right out of fashion. The overdrive was brought into play by means of a switch mounted on the propeller-shaft tunnel, and came into operation automatically at 40 m.p.h. with the switch in the 'on' position.

The mechanical basis of the car having been decided and assembled, the next step was to design a chassis round the engine, transmission and suspension. This had to be as strong as possible, yet not be too big nor too heavy. Eventually a simple main structure was evolved consisting of a pair of tough side members of box-section steel running the whole length of the car and passing under the rear axle. The frame was completed by cruciform bracing also of box-section. The weight factor was minimized by the neat overall dimensions—wheelbase, 7 ft. 6 ins., front track, 4 ft. 1 in. and rear track, 4 ft. 2 ins.

Towards the end of the summer of 1952, it was time to add the open bodywork and here we scored heavily. We produced some of the most attractive panelwork ever seen on any British car up to that time, and which hardly looks a day out of date at this very moment. Smooth, and sleek, it fitted the car like a glove and set the mood for power and effortless high speed. Like an aircraft, the shape was aerodynamic and functional, and because of that it was immensely attractive to the eye. In fact, there are many who maintain that the original shape of the Healey 'Hundred' was as near perfect as it could ever be,

and that the changes which have been made since to keep the car 'in fashion' could only, and in fact have, detracted from it. There was plenty of space for the driver and passenger in two bucket seats, an easily-erected hood for weather protection and considerable luggage accommodation.

The body of the new car was constructed of sheet steel for strength and accident resistance, with the upper parts, such as the bonnet top, of aluminium, saving weight wherever possible. There was also a sturdy steel undershield to provide protection and give the whole structure added strength. For ease of repair in the event of damage, care was taken to design bodywork in easily replaceable panels of reasonable size.

The job of building the body to the Healey design was given to the old-established firm of Tickford Ltd., famous for many years for coachbuilt luxury as well as for their previous association with the Healey Motor Company. One of the car's greatest assets was its low overall height, 2 ft. 11 ins. from scuttle to ground, its low seating position and its consequent low centre of gravity. Apart from its aesthetic value in helping the shape of the bodywork, this also greatly increased the car's stability. Another feature was the one-piece windscreen which folded down almost flat, so that wind resistance was reduced during high-speed runs.

With the prototype model complete (another prototype was built as a chassis only for test purposes and was never bodied), the time had come for some serious trial runs somewhere where high speeds could be reached and maintained. So the Healey team crossed the English Channel, and headed for the long, dead-straight Jabbeke motor road in Belgium, scene of so many full-bore try-outs and record runs through the years. The results of this sortie were encouraging, to say the least. The engineers and designers returned to Warwick to put in more long hours in the workshop adjusting and modifying; nevertheless we were secure in the knowledge that we were on the right track and were building the right car for the purpose for which it was intended.

By now autumn and the fortnight of the London Motor Show was approaching, the fortnight during which the world would be given its first sight of the sleek new model from the Healey stable. I was quite confident about my car, but I did not think much of the idea of launching it with the support of nothing more than a string of manufacturer's claims as to what it could do. I could say that it had excel-

lent handling qualities, that its perfectly standard Austin engine would propel it at over the 'ton' and so on. But would anyone seriously believe me? Much better, surely, to put an experienced motor-sporting journalist behind the wheel, send him off to put the car through its paces and then let him write of his experiences without bias, fear or favour. Much better, indeed, and that is exactly what I did. I took the 'Hundred' to Jabbeke once more, and put it into the capable hands of ex-racing driver turned journalist John Bolster of *Autosport*, the British motor-sporting weekly magazine.

Bolster gave the 'Hundred' prototype a full-scale road test with no holds barred. Returning to his typewriter, he wrote:

> . . . the introduction of a new Healey is an event of great importance in the motoring world. The object of the new model can be simply stated. It is a very fast road car, of superior refinement and with exceptionally fine handling qualities. It has a simple pushrod engine that has not been tuned in any way, and which is consequently easy to service . . . The admittedly excellent performance is due entirely to low weight and an efficient aerodynamic shape. It is purely incidental that, following this formula, Donald Healey has produced by far the cheapest fully-equipped car that will exceed a genuine, timed-both-ways 100 m.p.h.
>
> An average of 106 m.p.h. was achieved, with which we were more than pleased . . . During the timed runs, the rev. counter remained steady at 4,250 r.p.m. On the gears, about 4,800 r.p.m. can be attained before obvious valve bounce sets in . . . The suspension is first class, and one is at no time conscious of the short wheelbase . . . I had occasion to brake hard from three-figure speeds quite frequently, but no fading was apparent, and the car remained steady . . .
>
> A genuine sports-car should provide exceptional performance and stamina, coupled with a very high degree of controllability. The new Healey has these qualities in abundance, and in addition it shatters all previous concepts of value for money in this field. [U.S. price quoted was $3,000; £1,205 in the U.K.] With its lightly stressed and easily serviced engine it should stand up to a long life of hard driving. This is certainly the most important new model that we have seen for some time.

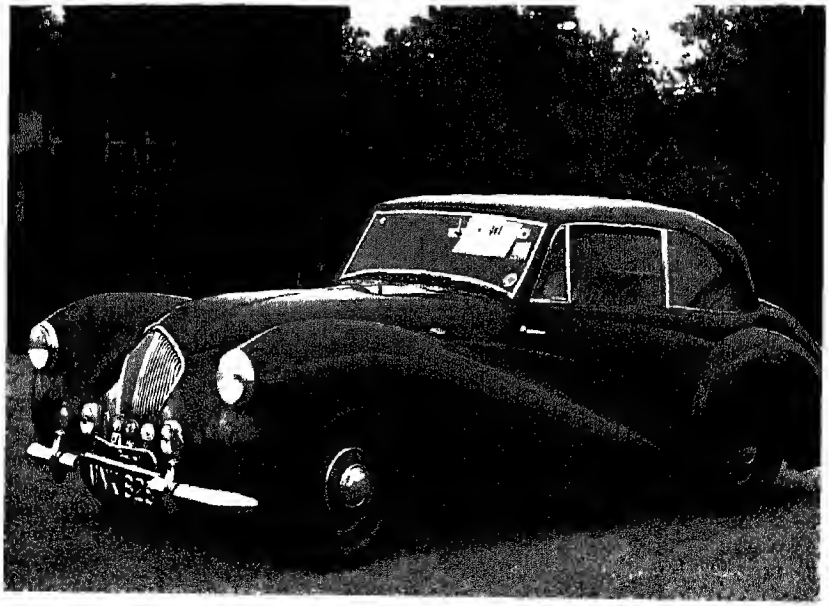
John Bolster's enthusiastic road test was published in *Autosport* on the opening day of the 1952 London Motor Show. It heralded thousands more words of praise which appeared in newspapers and magazines as soon as the motoring writers caught sight of the sleek Healey 'Hundred' displayed on its stand in the Earls Court exhibition hall. I myself offered few superlatives; nation-wide advertising was beyond the resources of my small organization. I waited for others to form their own opinion based on the facts and what they could see with their own eyes. I did not have to wait in vain. The superlatives were freely given, and came thick and fast. The 'Hundred' was described as being everything from 'remarkable' to 'sensational', depending on how soberly the journalist concerned wrote, or how carried away he became. But, more important still, the car was hailed as a certain dollar-earner. That was what I wanted to hear, almost more than anything else. But one big problem remained. The huge export orders which were taken during the first few days were of little use without facilities to build the cars in sufficient numbers, and any reasonable quantity order from the United States alone would be beyond the resources of the little Warwick factory. However, the situation was soon resolved by the timely arrival on the scene of Sir Leonard Lord, shrewd chief of the huge British Motor Corporation, the Austin–Morris combine. Sir Leonard had heard and read all about this new sports-car which was based on components from one of his own vehicles. He came along to see it at the Show and promptly made me an offer: 'We'll build the "Hundred" in our factories, and sell it across the world through our sales organization.'

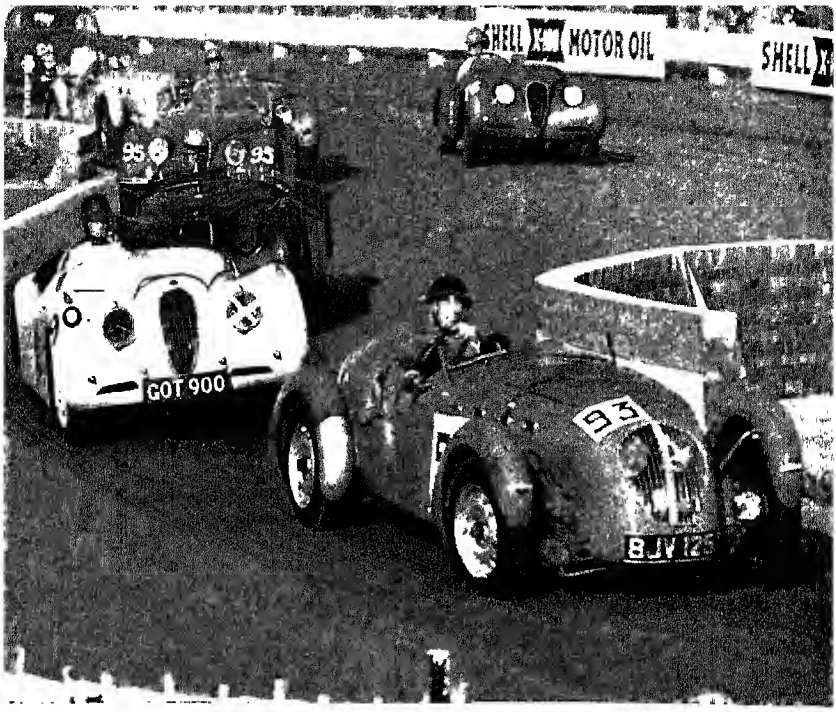
This sounded exactly the sort of proposition that was needed. With visions of hundreds of 'Hundreds' coming off the B.M.C. production lines, Sir Leonard and I quickly came to an agreement over production which still left the Donald Healey Motor Company well in the picture, and the deal was signed. When this news broke in the newspapers, further world-wide interest was aroused. The new Austin-Healey, as it was now to be called, was very definitely 'the car of the year' from October 1952 onwards.

Austin immediately took over all the production drawings of the 'Hundred', and their engineers got down to work planning factory space and ordering raw materials and components. It was essential that cars should start to leave the line as soon as possible, and before the intense interest in the 'Hundred' began to die down. While

The Healey with its 2·4-litre Riley engine frequently appeared on circuits in private hands during the early 1950s. Here one of them performs in a race at Silverstone

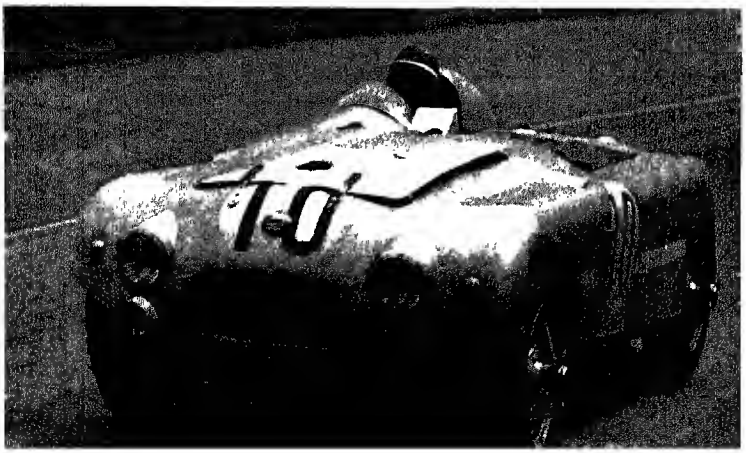
The 1951 Healey saloon with bodywork by Tickford

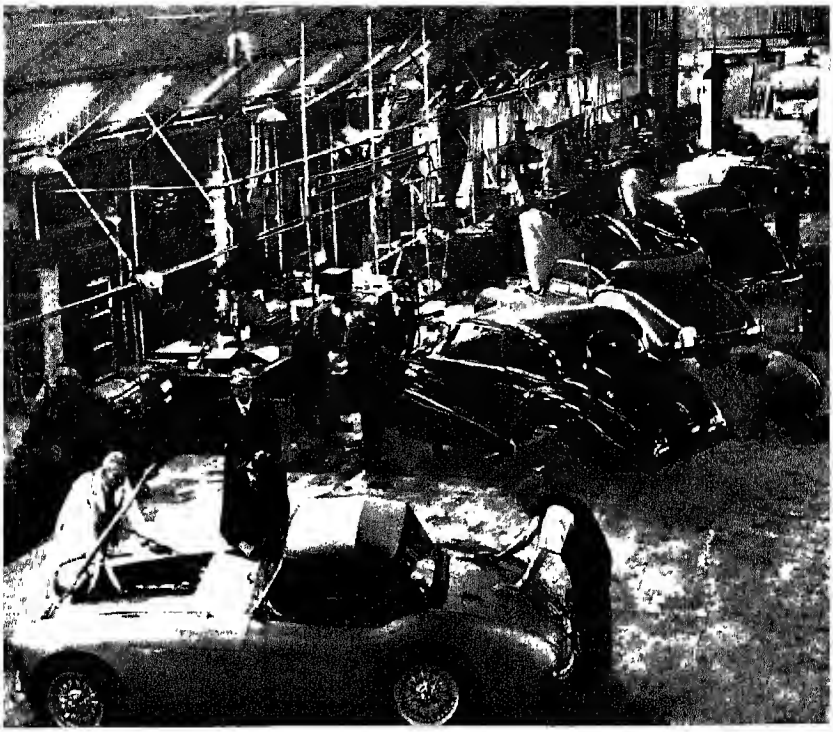




One of the most famous post-war sports racing cars was the Healey Silverstone, seen here leading a pack of XK120 Jaguars through the chicane at Goodwood

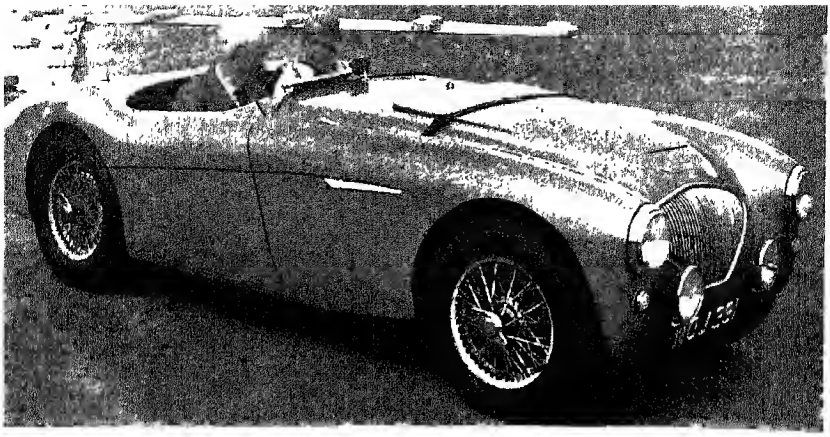
In the Twenty-four Hour Race at Le Mans in 1952 the Nash-engined Healey driven by Tommy Wisdom and Leslie Johnson took third place behind two Mercedes-Benz works cars

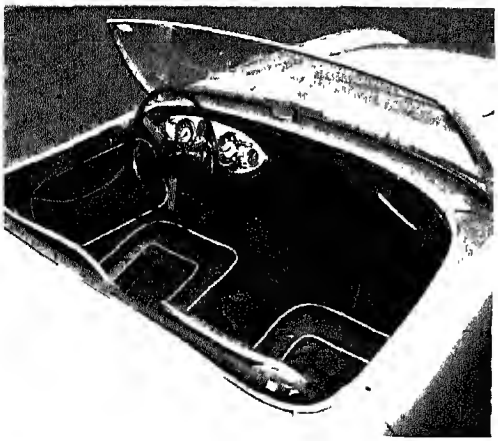




The Healey factory at Warwick. In the foreground is one of the first Austin-Healey 'Hundreds' to be built

The Healey Sports Boat powered by the 1,489 c.c. B.M.C. B Series engine





ABOVE B M C chief Sir Leonard Lord and Donald Healey trying out an Austin Healey 'Hundred' which later took part in a Le Mans race

LEFT The cockpit of the Austin-Healey 'Hundred' (left hand drive model)

BELOW The Austin Healey Hundred' with detachable hardtop

Austin were making preparations, a first batch of twenty vehicles was constructed at Warwick from components supplied by Austin, with bodies from Jensen Motors, West Bromwich.

By early 1953, however, the 'Hundred' was beginning to come off Austin's Longbridge assembly lines in something approaching quantity production. By July of that year, the rate was a hundred and twenty vehicles a week, and the economies of assembly line construction enabled us to announce an immediate reduction of over £140 in the car's British price. Even including the heavy taxes levied, this brought the total 'at home' price down to little over £1,000—a bracket more usually associated with family saloons of the more sober variety. Not that anyone at home could buy a 'Hundred', of course. At their dollar price, the United States and other export markets were snapping them up as quickly as they could be built, and that is where they all went. As with Jaguars, M.G.s and other desirable pieces of machinery, the British sports-car enthusiast could only stand and stare greedily at the sight of Austin-Healeys on their way to the docks to be shipped to the far corners of the world. It was an understandably galling experience.

Shortly after the Austin-Healey went into production, I drove one at a speed of 113 m.p.h. on the Jabbeke motor road, capturing two Belgian class records. Then, at its first public appearance in the United States, at the Miami World's Fair, the car won the Grand Premier Award, to be followed by the Grand Prize of the International Motor Sports Show in New York and a Gold Medal for the year's most advanced design for foreign cars. Within months the 'Hundred's' fame was world-wide.

With my sporting heritage I saw to it that the Austin-Healey made its competition début not long after its introduction. Two cars were entered for the marathon Italian road race, the Mille Miglia, in the spring of 1953. This was intended as a preliminary canter for the new vehicle, prior to running in the classic Twenty-Four Hours of Le Mans a couple of months later. I have always regarded the car-thrashing Mille Miglia course as an excellent testing ground for my vehicles. Faults invariably show up under the rough treatment they are given, and a great deal of useful information can be gained which is practically unobtainable in any other way. As it turned out, my belief was borne out by experience in this very race. The 'Hundred' driven by Bert Hadley retired with a broken throttle linkage. It was

later discovered on examination that the linkage ball-joints acted in the wrong direction and that they were very inaccessible when it came to repair. The arrangement was modified in production soon afterwards. In addition, the competition clutch plate of Johnny Lockett's car came to pieces only twenty miles from the finish. We learned that it was not as strong as the production plate, having too few rivets. This fault too was put right for Le Mans.

Two Austin-Healey 'Hundreds' were also entered for the Le Mans twenty-four hours Grand Prix d'Endurance, to be driven by Marcel Becquart/Gordon Wilkins and Maurice Gatsonides/Johnny Lockett with Ken Rudd in reserve. Basically quite standard, the cars were modified to a certain extent in both the engine and suspension departments, this work being done by Austin at Longbridge. A high-lift camshaft was introduced; carburetion, breathing and ignition were improved; road-holding was looked after by the use of harder front shock absorbers, stronger rear springs and a stiffer anti-roll bar. In addition, the high-speed characteristics and long straights of the Sarthe circuit prompted the use of a 3·667 to 1 back axle in conjunction with a 0·778 to 1 overdrive, giving an overdrive top ratio of 2·86 to 1. This replaced the standard production axle ratio of 4·125 to 1 (alternative: 3·667 to 1) and overdrive of 0·766, which gave an overall ratio of 3·12 to 1. The modifications raised the power output of the A90 engine from 90 b.h.p. at 4,000 r.p.m. to 100 b.h.p. at 4,500 r.p.m., while the road speed in overdrive top became 27·8 m.p.h. per 1,000 r.p.m. in place of 23·8 m.p.h. per 1,000 r.p.m. for the production model. Fuel consumption, all-important at Le Mans, was thus improved considerably, while its supply was increased by the fitting of a larger fuel tank. Further modifications included the fitting of lighter, ribbed Alfin brake drums and aero screens in place of the standard windscreen.

Both Austin-Healeys ran extremely well throughout the twenty-four hours, giving a convincing demonstration of speed and reliability in this their first major competition event. Reporting the event in his magazine, the Editor of *Auto-Course* said:

> The performance of the two Austin-Healeys in the hands of Becquart/Wilkins and Gatsonides/Lockett, probably the cheapest cars in the race, was remarkable. Entered only as a demonstration of the capabilities of a completely standard car, they were lapping consistently at speeds over 90 m.p.h.

Indeed, apart from their lap speeds, the latter car was timed along the measured kilometre at 118·12 m.p.h., thirteenth fastest of the sixty-seven entries. And their fastest lap (by the Becquart/Wilkins car) in 5 mins. 14·7 secs. (approximately 96 m.p.h.) was twelfth fastest of the whole field. At 4 p.m. on Sunday afternoon, when the chequered flag fell on the two winning Jaguars, the Austin-Healeys were still running in perfect order, finishing in 12th and 14th places, the leading (Gatsonides/Lockett) car having averaged 89·59 m.p.h. for the twenty-four hours. They were also placed second and third in the 3-litre class, being beaten only by the Trintignant/Schell Gordini, a sports racing car built specially for the job in hand. This show by the Austin-Healeys received wide recognition in the Press and further enhanced the ever-growing reputation of the *marque*.

From the time the 'Hundred' had first appeared, it was obvious to everyone that the car's standard production A90 engine would stand a reasonable amount of modification, and that this would enable private owners to achieve added power and performance for racing, or simply for high-speed road work. The factory also accepted the fact that the out-and-out enthusiasts were not going to put up with the ordinary 'cooking' engine for long. So, having produced a set of modifications which had worked admirably at Le Mans, they placed it on the market as a special equipment kit and added a booklet of tuning instructions for good measure. Thus, the Austin-Healey was set on its way to competition fame in private hands.

Following Le Mans, I looked around for a way in which to bring the performance of the 'Hundred' to the notice of the American public with a bang and within their own shores. Eventually I decided to follow the example of the original Austin Atlantic in 1949 and go for a collection of United States Stock Car records and United States and International Class records. So the end of August 1953 saw a team from the factory, plus a team of British and American drivers, gathered on the dazzling white wastes of Bonneville Salt Flats, Utah.

The carrying-out of the regulations for the selection of the vehicle for Stock Car record breaking, as laid down by the controlling body, the Contest Board of the American Automobile Association, is interesting and worth relating simply to show the lengths gone to to ensure that the car is absolutely 'stock' in every way. The A.A.A. themselves selected two brand-new production Austin-Healey

'Hundreds' direct from the display in a nearby dealer's show-room. The cars were then sealed and driven to the Salt Flats with a representative of the A.A.A. and the dealer concerned in each. A limited amount of running-in was then permitted, following which the team was allowed to select which of the two vehicles they would use for the record attempt. Thereafter, only basic routine adjustments were permitted, valves, tappets, wheel balancing and so on. Spare parts which might be needed later, and which the team brought with them from Britain, had to be scrutinized by the Royal Automobile Club before they left and sealed as standard replacement parts. The Shell fuel and Castrol oil, too, had to be sealed by the R.A.C. before despatch and certified as being from English stock. Naturally, the whole operation of the record runs themselves came under the strictest scrutiny of the A.A.A. officials.

In a period of motoring between the 9th and 16th September, the standard Austin-Healey made a clean sweep of American Stock Car records from 5 miles to 3,000 kms. and from one to twenty-four hours. It averaged over 104 m.p.h. throughout and recorded a fuel consumption in excess of 21 m.p.g. During the same period, a specially prepared car for Non-Stock International records streaked over the flying mile at a magnificent 142·64 m.p.h. It then went on to attack the long-distance figures successfully, but with six hours to go for the International twenty-four-hour record, lashing rain and high winds forced the car to abandon the attempt after having averaged well over 120 m.p.h. Nevertheless, between them the two Austin-Healeys collected over one hundred and thirty records at one scoop—and left no doubt in the minds of American sports-car enthusiasts that here was a potent machine worth every cent of the relatively few dollars asked for it. The drivers, incidentally, who made this remarkable bag were: Captain George Eyston, who must know the Salt Flats almost better than anyone else, film actor Jackie Cooper, Roy Jackson-Moore, C. Gordon Benett and myself.

Shortly before the record attempts, a single Austin-Healey, one of the Le Mans cars, had finished 11th in the Goodwood Nine Hours race back in England. Driven by Johnny Lockett and Ken Rudd, its performance had not been spectacular, but it had at least completed the event without trouble, more than could be said for a lot of the entrants. The only remaining public activity for Austin-Healey during 1953 was the London Motor Show, at which we exhibited a standard

production model together with the Bonneville record-breaking machine. So ended the 'Hundred's' first twelve months of production. One way and another, it had been quite a year!

From 100S to 203 m.p.h.

The opening months of 1954 saw great activity in the workshops of the Warwick factory. The production Austin-Healey coming off the Austin assembly lines at Birmingham continued to be the 'Hundred' model with the original specification. However, development work was in progress on a new model—the 100S, the 'S' standing for Sebring. Other sports-car manufacturers, notably Jaguar, had developed highly successful out-and-out racing machines from their production models. By now it had become plain that in the 'Hundred' I had a machine worthy of considerable modification, which could easily be turned into a car designed specifically for racing, and at the beginning of 1954 I turned my attention towards building it.

The first step was further to modify the four-cylinder engine. The unit's cubic capacity remained the same, but in order to drag more power from the 2,660 c.c., a new cylinder-head design was requested from the free-lance expert Harry Weslake, who had done the head and gas flow work on the 'C' and 'D' type Jaguar engines. He replied with a four-port aluminium-alloy head which was to form the major development beneath the bonnet. Other changes here, however, included the use of a nitride hardened crankshaft, tri-metal bearings and strengthened connecting rods to withstand the extra stresses involved—for the Austin engine now produced no less than 132 b.h.p. at 4,700 r.p.m. Nearly half as much again in the way of power had been searched out of the original A90 unit!

Another important departure was the all-round use of Dunlop disc brakes to help disperse all the new-found power. These had been fitted to the Le Mans-winning Jaguars the previous year, and had helped considerably to gain victory for them. They had practically changed the face of racing overnight, and were the obvious choice for the 100S. Also fitted to the new model was a combined oil filter and

cooler, while the gearbox now had four forward speeds and no overdrive. The normal ratio of the spiral-bevel rear axle was 2·92 to 1, giving overall gear ratios of 8·98, 5·57, 3·88 and 2·92 to 1, with a reverse of 12·2 to 1. A selection of alternative rear-axle ratios was naturally made available. Front and rear suspension systems were similar to those of the production car, but with stronger shock absorbers and anti-roll bars. Steering was by Burman cam and lever, but the new adjustable racing steering wheel was of aluminium alloy with a wooden rim. The lines of the coachwork closely resembled those of the 'Hundred', but managed to make the car look a fraction less sylph-like, and a fraction more purposeful and business-like. The panelling was entirely of aluminium alloy, with a one-piece perspex windscreen and a petrol filler cap of race-like proportions leading to a 20-gallon (24 U.S. gallons) tank. The radiator grille was oval in shape, distinguishing the car at a glance from the normal 'Hundred'.

The first major outing of the 100S took it to Sebring for the famous 12-hour Race, second round of the 1954 World Sports Car Championship. This was the year when the Lancias, favourites for victory, encountered trouble all the way and the winner's flag went to Stirling Moss and Bill Lloyd in a 1,500-c.c. Osca. The single Austin-Healey 100S went extremely well from the outset, being driven by Lance Macklin and George Huntoon, and by quarter-distance it had climbed to eighth place. By half-distance, following the departure of other bigger and faster machines to the dead-car park, it was fourth and going strong. And three hours later again, the 100S lay third to Taruffi's Lancia and the Moss Osca. When Taruffi retired there was every hope that Macklin and Huntoon might win, but a valve rocker broke and the car had to continue on three cylinders. Disappointing, perhaps, but their final third place was described by one American journalist as 'really phenomenal', and when you come to think of it, that's exactly what it was. As for the broken rocker—well, that indicated modifications for the production component. In Geoffrey's words: 'You see, racing does get you somewhere!'

After Sebring it was a case of back to the factory, put the lessons learned into practice and then off to Italy for my favourite, the Mille Miglia. Three cars this time (all 100S, of course), and driven by Tommy Wisdom, French ace Louis Chiron and Lance Macklin. Neither Wisdom nor Chiron lasted long. Before Rome was reached the former was out with a holed sump, the latter with a broken brake

pipe. But Macklin was in luck. His car held together despite the pounding it received, and he finished the thousand miles returning to Brescia holding fifth place in his class—the best British performance of the race.

When June and Le Mans time came round once more, the Austin-Healeys were notable absentees. I had taken exception to the sports-car racing regulations then in force, had withdrawn my three basically standard production car entries and issued a statement which said, in the main:

> We (the Austin Motor Co. and I) have made this decision as we consider the present regulations for sports-car racing allow cars to compete which do not bear the slightest resemblance to production cars. In view of this, racing of this type loses its value to both the manufacturer and the public.
>
> When race organizers adjust their regulations so that cars eligible are at least modified production cars . . . this decision will be reconsidered.

In other words, we were unwilling to and (to quote Geoffrey) 'unable to afford to build these fabulous racing cars', which I considered were simply, and unfairly, masquerading as sports-cars. Despite considerable criticism in the Press, the 100S prototypes appeared in no further European sports-car events that year.

But soon it was August, and the Salt Flats at Bonneville were again ready for further record-breaking attempts. This time the tuned 1953 International records car was brought out, but with engine improvements to gain more power. It was, in fact, altered to 100S specification. The car's target was a cluster of International and American Class D (3-litre) records, and once again they fell like ninepins before the Austin-Healey's onslaught of speed. In all, no less than fifty-three records were taken, the principal ones being 3,000 miles at 132·1 m.p.h., 5,000 kms. at 132·2 m.p.h. and 24 hours (3,174·9 miles) at 132·2 m.p.h.

Also present on that occasion was a very special Austin-Healey equipped with an Austin-developed Shorrocks supercharger and special bodywork, consisting of an extended nose and tail, a tail fin and a perspex bubble cockpit cover. These alterations were to compensate for loss of power due to the altitude of the Salt Flats (4,300 ft.

above sea level) in some really flat-out high-speed runs to send the Austin-Healey's velocity just as high as it would go. As it turned out, the speed went a good deal higher than most people would have thought possible. Up to 192·6 m.p.h. for the flying mile, in fact. And in addition, the car collected a further crop of International and American national Class D records, including: 10 miles at 181·0 m.p.h., 5 miles at 183·7 m.p.h. and 1 hour at 156·7 m.p.h. Pretty good for the five-year-old Austin A90 engine which, after all, was still the mechanical basis of the car! The Certificate of Performance issued by the A.A.A. Contest Board to record the 192·6-m.p.h. achievement has a proud place on the wall of the boardroom at the Warwick factory. Many other certificates for other records hang there too, but perhaps this particular one is regarded with just that much more pride.

The 100S models which appeared in competitions during 1954 were all regarded as prototypes. But the car was presented to the public officially at the London Motor Show in October of the year. Naturally, it was principally destined 'for export only', and the price tag of less than $5,000 ensured that most of the vehicles went there. The 100S went into production at Warwick before the end of the year and, in all, just under one hundred of the cars were built and sold. Quite a reasonable number, considering its specialist, limited applications. The normal 'Hundred', still selling in large quantities all over the world, also appeared at the Show and continued in production during 1955.

The first Austin-Healey sporting sortie of 1955 was, as before, the Sebring 12-hour Race in March. On this occasion a full team of three 100S cars was entered, although only one entry originated from the works itself—that driven by Stirling Moss and Lance Macklin. The other two were privately owned and sponsored, though they had factory backing on the circuit. The American drivers of these machines were Brewster/Rutan and Cook/Rand. As usual, the factory-entered machine was perfectly standard according to the catalogue, its two professional drivers being instructed that, if either of the American 100S owners were unhappy about the performance of their own cars, then they were to be allowed to drive the works one. During practice Moss lapped the five-mile Florida circuit in 3 mins. 56 secs., a very promising time indeed for a production car, no matter how well tuned it might be. With the other two 100S models performing well too, it

looked as though the 2·6-litre Austin-Healeys had every chance of doing well, and of once more demonstrating their speed and reliability to the Americans on their home ground.

With his usual agility, Moss sprinted across the track, and was away first from the Le Mans-type start at 10 a.m. At the end of the first lap he held fifth place in front of a lot of Ferraris and other much more powerful machinery. Later he dropped back and with Macklin circulated steadily for some hours in eighth and ninth positions. But the hard grind of the long-distance race took its toll, and by 6 p.m. Moss's brilliant driving, plus several retirements, had lifted the Austin-Healey to sixth place behind the leading Hawthorn/Walters Jaguar and a bunch of works Ferraris and Maseratis. The second 100S of Cook/Rand was not far behind in tenth position, with the third, Brewster/Rutan, well in the picture too.

With four hours to go, the Austin-Healey trio drove steadily around the Florida airfield circuit as though they were on rails, visiting the pits only for routine refuelling and changes of driver. Towards the end Cook/Rand fell back a few places and were passed by the other American 100S, so that when the chequered flag fell in the floodlit darkness at 10 p.m., they lay fifteenth and sixteenth respectively. But Stirling Moss and Lance Macklin were still up at the front, sixth, their extraordinary production car being beaten only by Hawthorn's D-type Jaguar and the very special machines from Modena and Maranello. In addition, my car mopped up the first three places in the Series Production Class, while one reporter commented on Moss's performance: '[He] proved that if you haven't got a lot of money for buying a racing car, you can get just as much speed out of an Austin-Healey if you know how to drive it. He does!'

The next event in what was becoming the familiar pattern of the Austin-Healey racing programme was the Mille Miglia on the first day of May. Four cars were entered on this occasion, all 100S models naturally, driven by George Abecassis, Lance Macklin, Scotsman Ron Flockhart and myself. Stirling Moss was otherwise engaged on that day, at the wheel of a Mercedes-Benz 300SLR, driving a fantastic record-shattering race to win and mark an epoch in the long history of the event. The target of the Austin-Healey efforts was the special class for series production open sports-cars costing less than two million lire in Italy, the principal British opposition here being a team of three works-entered Triumph TR2s.

The Triumphs, however, suffered from hasty preparation and lack of practice. Abecassis finished in an extremely creditable eleventh place in General Classification in spite of running out of fuel at one stage far from a control, winning the required class and being the first British car to finish. Macklin arrived back in Brescia in thirty-fifth place and fourth in the class after a difficult race. The throttle linkage of his car had broken near Rome, and he was forced to drive the rest of the distance on the ignition switch after fastening the throttle full open. Poor Flockhart, though, had a narrow escape when he went straight on at a bend over a small river. The car ploughed through the parapet of the bridge and plunged into the stream.

Austin-Healey returned to Le Mans in June 1955, supporting after some hesitation a 100S model privately entered by Lance Macklin and driven by himself and Les Leston, the latter having built up a considerable reputation in Britain as a reliable and fast driver of a wide variety of cars, principally half-litres. The 100S, however, never really had a chance to show its paces, being involved in the terrible Mercedes-Benz disaster two and a half hours after the start of the race when parts of the crashed German car hurtled into the public enclosures. Fractionally before ramming the bank opposite the pits and disintegrating, Pierre Levegh's Mercedes 300SLR struck the tail of Macklin's car, sending it spinning and rebounding from the pit area on one side of the road to the earth bank on the other, until it eventually came to rest in the centre of the road. The car was wrecked, but Macklin himself escaped uninjured. Prior to the catastrophe, the 100S had been circulating consistently at over 100 m.p.h., and with better luck should have been able to keep this up for the whole twenty-four hours.

Three months later, disaster once again struck Lance Macklin and his Austin-Healey 100S, the sole works entry in the Golden Jubilee Tourist Trophy race at Dundrod, in Northern Ireland. Soon after the start, no less than seven cars became involved in a multiple collision on a narrow section towards the back of the winding seven and a half mile road circuit. One of these was the Austin-Healey, which Macklin had to ditch in a hurry to avoid the wreckage of other machines. Once again, Lance was lucky enough to escape unhurt.

Nor had the *marque*'s fortunes fared any better in the Liège–Rome–Liège marathon rally a couple of weeks previously. One 100S had been entered in this event as part of the official B.M.C. works

team under B.M.C. Competition Manager Marcus Chambers, but, driven by Peter Reece and Dennis Scott, it failed to finish. Apart from the Sebring effort right at the start of the season, 1955 was a most unfortunate competition year for Austin-Healey.

However, the year's London Motor Show brought sports-car enthusiasts some more cheerful news—two new Austin-Healey models were announced for the following year. First and most important was the revised version of the 'Hundred', which retained the same name as far as the public was concerned, although it was officially designated Type BN2 by the factory. Having sold in their thousands for three years, it might have been thought that the moment had come for a complete change. In point of fact, an entirely new car was being planned on the Healey and Austin drawing-boards at the time for release in due course. Meanwhile, however, the 'Hundred' remained quite unchanged externally, all the alterations and improvements being of a technical, 'under the bonnet' nature.

To begin with, a four-speed close-ratio gearbox of 100S-type took the place of the three-speed version fitted to the BN1, while the overdrive ceased its automatic engagement at 40 m.p.h. when switched on, and became wholly manually operated. With the overdrive working on the two top ratios, six forward gears were now available—12·60, 7·85, 5·46, 4·24, 4·10 and 3·18 to 1. A further change was the substitution of a hypoid-bevel rear axle with a ratio of 4·10 to 1, for the previous spiral-bevel unit of 4·125 to 1. In addition, the brake-lining area was increased from 165 sq. ins. to 188 sq. ins. and the front suspension was stiffened. The four-cylinder 2,660-c.c. A90 engine with its twin S.U. carburettors remained unaltered, as did its power output of 90 b.h.p. at 4,000 r.p.m.

The second new Austin-Healey of 1955 stemmed from the success of the Le Mans tuning kit marketed since 1953. So many of these had been sold to owners who wanted a degree of extra performance for competition work, but found it not worth going so far as to invest in a 100S, that it seemed that a separate model incorporating the Le Mans modifications would find a ready market. This was particularly true of the United States, where a steady demand for such a car came from the Austin-Healey distributors.

As a result, there appeared at the London Motor Show the Austin-Healey 100M, with larger carburettors, high-lift camshaft, a higher compression ratio of 8·2 to 1 and considerably stiffer suspension.

Other additions were a louvred bonnet top, a Le Mans regulation bonnet strap of leather and, further to distinguish the car externally, a two-tone paint finish in a variety of colours. These modifications were all carried out by the Donald Healey Motor Company, which took standard BN1 and BN2 Austin-Healeys from the Austin factory and turned them into M-types at Warwick. Several hundred vehicles were transformed in this manner, and the expected ready market for them was found without difficulty.

Incidentally, an interesting exercise involving an Austin-Healey was carried out a few days before the London Motor Show opened in October. B.M.C. sent five of their production cars under the command of Marcus Chambers to the Montlhéry circuit, outside Paris, with the purpose of each of them covering more than 100 miles in an hour's run. An Austin-Healey in standard trim, but equipped with certain catalogued extras, was included in the group and, driven by Ron Flockhart, achieved 104·32 miles in its hour of motoring despite lashing rain and gale-force winds.

When the time came round once more for the 12-hour Grand Prix of Endurance at Sebring, in March, the *marque* was represented by a couple of 100S models in the hands of Lance Macklin, driving with the meteoric Archie Scott-Brown, and Roy Jackson-Moore, an Englishman resident in the United States, who was paired with Forbes Robinson, an expatriate Australian. Both cars recorded creditable times during practice and, in fact, went extremely well for the first nine hours of the event itself, Archie Scott-Brown's rapid 'press-on' driving style making a considerable impression on the crowd who were seeing it for the first time. On the ninetieth lap, however, the clutch failed on the Jackson-Moore/Robinson car, whereupon, twenty minutes later, the exhaust pipe came adrift on the English drivers' machine, the flames from it burning up the starter motor. It took less than an hour to bring the Austin-Healey team's Sebring efforts to an end for that year, while Fangio/Castellotti and Musso/Schell in a couple of works Ferraris went on to win. However, all was not lost by any means for the Warwick cars. Stiles and Huntoon, two Americans driving a 100S they had entered themselves, had a steady, trouble-free run all the way and finished eleventh overall and third in their class, thus making sure that the *marque*'s name was mentioned in the final lists.

There was no official works team for the Mille Miglia of 1956,

representation being left to the two private entries of Leslie Brooks and the well-known motoring journalist and racing driver, Tommy Wisdom, who was taking part in the race for the tenth time. Wisdom took Walt Monaco as his passenger, while Brooks took rally driver Stan Asbury. The latter pair unfortunately crashed early on, luckily escaping with nothing worse than bruises, but Wisdom's great experience of the course helped him to finish as runner-up in his price-category class.

Soon preparations were going ahead for yet another record attempt at Bonneville. Two cars were being built, both on the standard Austin-Healey 'Hundred' chassis and based on what could best be described as extended forms of the normal coachwork. One was slightly lengthened by extending the nose and tail, and was fitted with an unsupercharged Austin six-cylinder engine of 2,639 c.c., having three twin-choke carburettors, a 9 to 1 compression ratio and a consequent power output of 150 b.h.p. at 5,000 r.p.m. This vehicle was known as the 'endurance car' to differentiate it from the 'speed car'. The latter had the six-cylinder engine plus a supercharger, giving an output of over 250 b.h.p., the development of this unit having been done by Austin at Longbridge. The bodywork of the 'speed car' was similar to that of the 1954 record breaker, but it was further modified and extended in form to meet the requirements of the aerodynamic experts. Suspension, gearbox and chassis dimensions were all standard Austin-Healey, but the car was fitted with Dunlop disc brakes, disc wheels and special high-speed tyres.

The cars and the drivers (Carroll Shelby, Roy Jackson-Moore and myself) arrived at the Salt Flats at the beginning of August, only to have to wait around for a week before we could take possession of them from the previous motoring tenants. Then a supercharger component on the 'speed car' broke, and there was more waiting to be done while a spare was flown out from Austin in England, and while modifications were made to see that the fault did not recur. Eventually, there was only enough time left for me to make a single run—but it was quite a run! In a two-way sprint up and down the salt, the Austin-Healey with its new engine and supercharger recorded a magnificent mean average of 203·06 m.p.h., an extraordinary speed for a production engine of less than 3 litres.

But that was not the end of it by any means. The 'endurance car' went out with Shelby and Jackson-Moore, and returned having

smashed a collection of sixteen-year-old records in the International Class D, plus many American National records. The five principal ones, from 200 miles to 500 miles, were taken at more than 150 m.p.h.

The figures captured at Bonneville on this occasion constituted a kind of 'mopping-up' operation, as the Austin-Healey 'Hundred' was now the proud possessor of every single record in its class from one to 3,000 miles. Without doubt, this was a magnificent achievement of which my team and I could be (and were!) extremely proud. And for those with an eye for such things, the advent of the six-cylinder engine, used previously in Austin's larger family saloons, presaged important Austin-Healey developments in the design departments at Warwick and Longbridge.

4. From the '100-Six' to the '3000'

'100-Six' and More Success

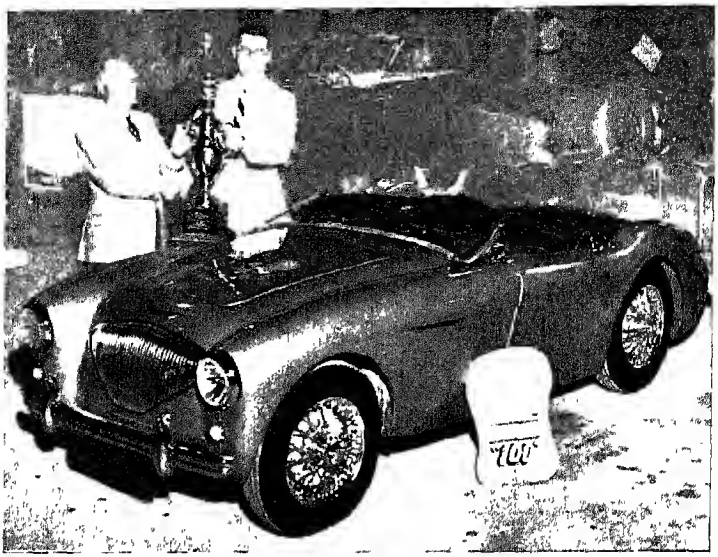
Having set record-breaking sales as well as speed figures throughout its four-year life, the name and good reputation of the Austin-Healey was known to sports-car enthusiasts throughout the world, except perhaps behind the Iron Curtain. But four years is a fairly long life for any model, and the time had come for a successor to the 'Hundred'. It arrived in September 1956 and made its first appearance at the London Motor Show a month later.

Named the Austin-Healey '100-Six' (Type BN4), the car was still based on the 'Hundred' (why throw away an outstandingly successful design for ever?) and was described in the catalogue as an 'occasional four-seat sports tourer', but it was still sufficiently different to warrant the tag 'entirely new'. To start with, the 'forward-lookers' at the time of the last Salt Flats attempts had been quite right—the bonnet of the '100-Six' did contain the six-cylinder 2,639-c.c. A105 engine. With twin S.U. carburettors and a compression ratio of 8·25 to 1, it had a power output of 102 b.h.p. at 4,600 r.p.m., twelve more than the 'Hundred'. A further advantage was its inherent six-cylinder smoothness, taking the place of the rather rough 'lumpiness', which even the most ardent enthusiast had to admit did exist with the 'big-four' engine of the 'Hundred'. The overhead-valve system remained pushrod operated, while overdrive became an optional extra to the four-speed gearbox, providing greater fuel economy and a high cruising speed at lower engine speeds for a little extra money. Gearbox top gave 18·02 m.p.h. per 1,000 r.p.m.; overdrive top raised this to 23·18 m.p.h. Overall forward ratios were: 3·076, 1·913, 1·333, 1·037 (overdrive third), 1·0 and 0·778 (overdrive top) to 1. The ratio of the hypoid bevel final drive was 3·91 to 1 (4·1 to 1 with overdrive).

The front suspension was by wishbones and coil springs, plus a stabilizing bar, the rear by semi-elliptic springs and a Panhard rod. Lever-type hydraulic shock absorbers were fitted all round. The new steel and aluminium bodywork was styled a little more in the American manner, with more (but not too much) chromium plating, and had a standard two-tone paint finish. The 'Hundred' and '100-Six' could hardly be mistaken in appearance, but if they were, a distinguishing point of the latter was its chrome bonnet-top grille vent to admit air for engine cooling. In addition, to cater for the family man who still wanted his motoring to be of the open-sports kind, the two-door body on the larger wheelbase contained two occasional seats behind the front bucket seats suitable for children or, at a pinch, one adult sitting sideways. This could, of course, be used as luggage space additional to that in the boot. Pressed-steel disc wheels were supplied as standard, but wire-spoked 'knock-on' wheels were listed as optional extras. Brakes were hydraulically operated, of drum type. Both Press and public welcomed the newcomer as a step in the right direction, and the general opinion was that it would sell overseas in even greater numbers than the 'Hundred', and become even more popular to a considerably wider market of sports-car enthusiasts.

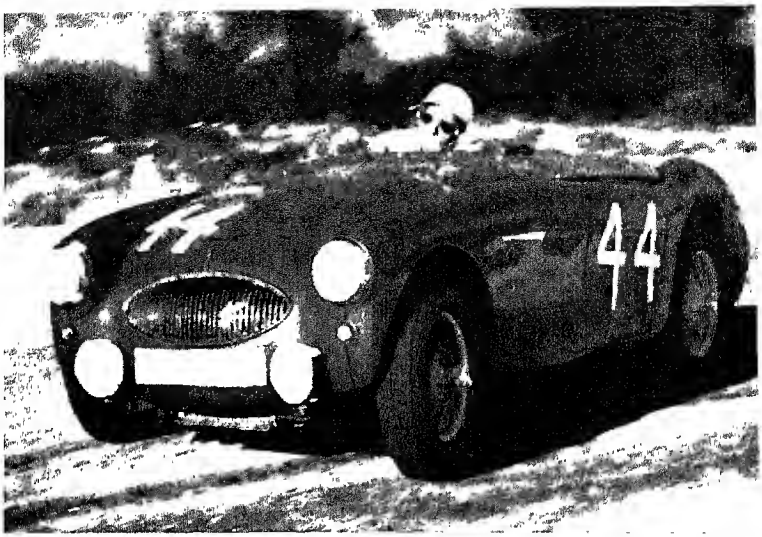
Obviously, the first thing to do now was to enter the '100-Six' in a few sporting events to show its paces, and a standard model was immediately prepared for Tommy Wisdom to drive in the Monte Carlo Rally at the beginning of 1957. This was the first occasion on which the Austin-Healey had been eligible for International rally work, but the Suez crisis intervened and, in company with all other European events, the classic rally was cancelled. The first round of the year's European Rally Championship therefore became the Italian Sestriere event in March, to which Tommy Wisdom's entry was switched. With daughter Ann as his co-driver, Wisdom had a trouble-free run, but the '100-Six' was completely outclassed in the Unlimited Grand Touring category by such things as Ferrari 250s and finished some distance down the line.

As it turned out, Austin-Healey had none-too-good a time at Sebring either. The team of Bonneville-type '100-Six' cars with elongated noses, entered by Hambro Inc., the *marque*'s United States importers, and driven by American teams, met with misfortune. Two cars were eliminated by mechanical disorders, while the third (Ray Cuomo/George Geitner) was involved in a spectacular accident soon



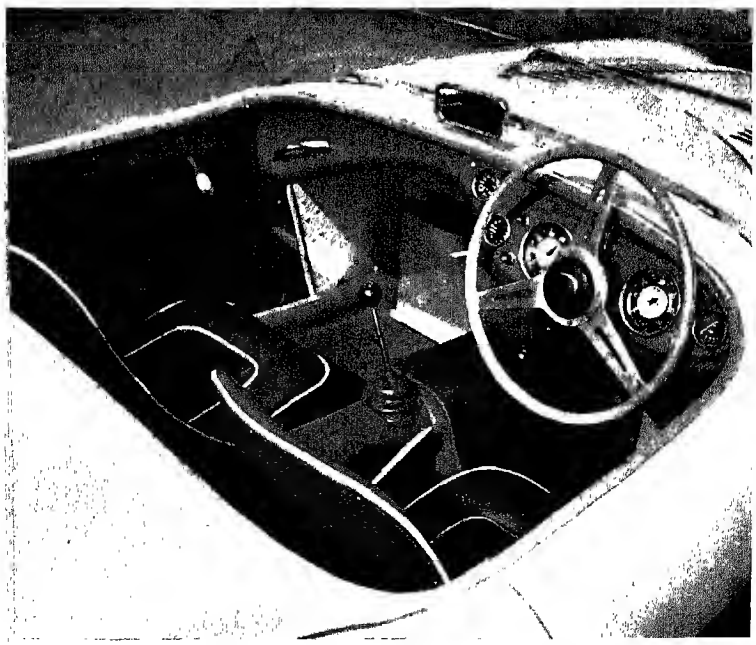
Donald Healey receiving the award when the Austin-Healey 'Hundred' became a prizewinner at the World's Motor Fair, Miami, Florida, shortly after its introduction

From the outset the Austin Healey 'Hundred' became well known as a popular racing car. Here are two performing in a club meeting at Goodwood



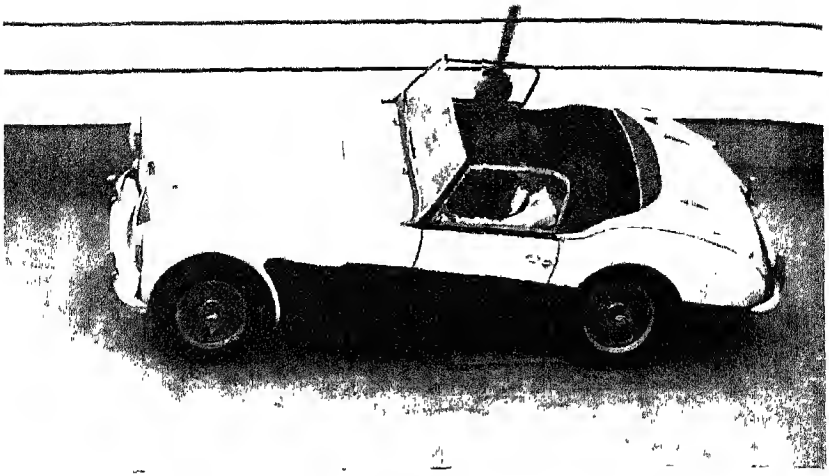
Stirling Moss driving the Austin-Healey '100S' at Sebring

The cockpit of the Austin-Healey '100S'. Note the wooden-rim, racing-type steering wheel



The 132 b.h.p. Austin-Healey '100S', sold purely as a competition car

The 100 b.h.p. Austin-Healey '100M' racing at Le Mans



The Austin Healey '100 Six' undergoing proving trials on the banking of the M I R A test track

Tommy Wisdom (in trilby hat) and his co-driver talk over Monte Carlo Rally prospects, leaning on the bonnet of their Austin Healey 100 Six' hardtop

after the start. However, after extensive repairs to the bodywork, the car went on racing and eventually finished 26th overall.

Next on the list—the Mille Miglia, and here Tommy Wisdom drove his standard '100-Six' expertly and steadily through to 37th place in the General Classification and first place in the car's limited category. The *marque* did not take part in the year's twenty-four hour race at Le Mans, so the next notable date in the Austin-Healey story came just before the London Motor Show, as usual in October.

Just as the original 'Hundred' had been 'warmed up' by the Le Mans modification kit a year after its introduction, so was it time to put a little more 'edge' on the '100-Six', whose extra 12 b.h.p. had not added all the fire the figures might suggest. The means employed to sharpen up the A105 power unit was a new cylinder head developed by Austin in conjunction with Harry Weslake, with enlarged inlet and exhaust valves and a separate six-port aluminium inlet manifold, the old manifold having been cast in with the head. In addition, the heat-resistance of the exhaust valves was increased by the use of KE965 steel, the exhaust porting was reshaped to improve gas-flow, solid-skirt, flat-topped pistons were introduced, heat exchange in the carburettor area was localized to two hot spots instead of being spread over the whole manifold length, and the 1½-in. carburettors were replaced with 1¾-in. S.U. instruments inclined in a semi-downdraught position at 35 degrees from the horizontal. With the compression ratio stepped-up from 8·25 to 8·5 to 1 and a new distributor to suit its altered characteristics, the engine now gave an added 15 b.h.p., the maximum rating becoming 117 b.h.p. gross (115 b.h.p. net) at 5,000 r.p.m. The new cylinder head, incidentally, was the same as that fitted to the 1956 Bonneville car, less the triple carburettors and 9·1 compression ratio, while the remainder of the modifications had been given a quiet and successful try-out on Tommy Wisdom's Mille Miglia machine a few months previously. All 1958 production models of the '100-Six' coming from the British Motor Corporation's assembly lines were fitted with this new engine (Type BN6) incorporating the six-port cylinder head, and a kit was made available for the modification of 1957 cars. Thus, few '100-Six' models now remain with the lower-powered BN4 unit.

And so to 1958 and the Monte Carlo Rally, for which Wisdom's Mille Miglia car was prepared to be driven again by Tommy himself. But the Monte that year was distinguished by atrocious weather

conditions. Ice and snow were feet deep on the roads, especially on the route from Paris, from which the '100-Six' started. Almost the entire Paris entry of nearly ninety cars foundered during the first hours of the run, and Wisdom, despite his years of experience, was no exception. They were simply unable to get through, and that is all there was to it.

Hambro Inc. once again entered a team of '100-Six' cars for the Sebring 12-hours with seven United States drivers alternating at their wheels—Fred Moore, Gill Geitner, Phil Stiles, Bill Kincheloe, Gus Ehrmann, Harold Kunz and Ray Cuomo. Their run was successful, pretty well free of incident apart from the clutch of each car having to be treated with fire-extinguisher liquid to eliminate slipping, and they carried off the much-coveted Team Prize, which had been won the previous year by the B.M.C. team of M.G.s. A few weeks later, the Healey Company loaned Tommy Wisdom's Monte Carlo Rally car to B.M.C. for the Dutch Rally Championship event, the Tulip Rally, in which it was driven by Austin exponent Jack Sears and Peter Garnier, Sports Editor of *The Autocar*. From the outset, the experienced crew did well, but they were eventually eliminated from the event by a fractured distributor-drive shaft.

During the last week of August, three Austin-Healey '100-Six' models covered themselves in glory and achieved one of the most memorable victories in the whole competition history of the *marque*. The event concerned was the 'Marathon of the Road' which, when it passed through Rome, used to be called the Liège–Rome–Liège Rally. Rather more of a four-day road race than a rally, but counting for the Rally Championship, the Marathon on this occasion consisted of a 3,300-mile course through some of the most difficult country in Europe, to be completed in one continuous stage of 96½ hours' driving. There is absolutely no doubt that the Marathon is now Europe's toughest event of the year bar none, and the 1958 Marathon was just about the toughest of the series of twenty-eight. Its demands on the physical stamina of the crews and the mechanical stamina of the cars are unparalleled.

The Austin-Healey team for the Marathon of the Road was entered by B.M.C., the cars being driven by Gerry Burgess, the highest-placed British finisher the previous year, with Sam Croft-Pearson; Nancy Mitchell, twice European Women's Champion and Marathon Ladies' Award winner in 1951, and Anne Hall; while Stirling Moss's younger

sister, Pat, teamed up with her permanent rally co-driver, Ann Wisdom. From the start in the Belgian city of Liège, the Austin-Healeys blazed their way around Europe, leaving lesser cars and crews broken and bewildered by the roadside. By the time the Rally was three-quarters run, they were the only National Club team left, and at the finish (also at Liège) they found they had not only won that prize, but the *marque* Team Award as well.

But the most fabulous performance of all came from Pat Moss and Ann Wisdom, who not only won the Ladies' Award and their class with their fourth place in the General Classification out of 106 starters, but also finished higher than any women, or indeed any British competitor, ever had before. With Nancy Mitchell and Anne Hall placed second for the Ladies' Award, the end of August 1958 marked a peak in the Austin-Healey story which will not easily be surpassed. And their Ladies' Award win, together with their similar victory in the notorious Alpine Rally a few weeks previously (also in an Austin-Healey '100-Six'), helped Pat Moss and Ann Wisdom considerably towards their acclamation as joint European Women Champion Drivers at the end of the season. Four out of the five Austin-Healeys entered in the Alpine finished the course in this extremely difficult event, the drivers of one of them (Bill Shepherd and John Williamson) winning a coveted Alpine Cup for an unpenalized run. In passing, it is noteworthy that of the twenty-five finishers out of fifty-six starters in the Alpine Rally, no less than ten were B.M.C. cars.

In June 1958, a slightly modified Austin-Healey '100-Six' made its bow—a model in which the two occasional rear seats had been done away with, the space being devoted to increasing luggage room, for those owners without children. No alterations or additions were announced for the next year's models displayed at the 1958 London Motor Show, and the extremely successful year in both sales and competitions came to an end with a further bout of record breaking.

On this occasion, a team of seven Cambridge University undergraduates drove an unmodified '100-Six' for four days and nights virtually non-stop round the Montlhéry circuit outside Paris. On these long-distance record attempts, the average speeds attained are inclusive of all the time taken for refuelling and tyre and driver changes, so the car's actual running speed for the entire four days was over 100 m.p.h. Nevertheless, when the '100-Six' finally pulled into the pits for the last time after 103 hours on the circuit, it had

smashed seven more International Class D (3-litre) records from 5,000 miles at an average speed of 98·5 m.p.h. to four days at 97·04 m.p.h.—and was in perfect enough condition to set off and do the whole thing again.

It is worth noting that since the announcement of the 'Hundred' in 1952, nearly 90 per cent of all production has been exported to over eighty different countries and 75 per cent has been sold for dollars. My original 1951 assessment of the potential United States sports-car market had been right on the target.

The Sprite

On 20th May 1958, an announcement from Longbridge opened a fresh chapter in the Healey story and heralded the return of an era in Austin history. The Healey Company had never built a small, inexpensive sports-car; Austin had not done so for nearly twenty years. Now they were co-operating to produce one in the tradition of the famous 'Seven' of the nineteen-twenties and thirties, mentioned earlier in this book. The newcomer was named the Austin-Healey 'Sprite'.

Having derived the Austin-Healey 'Hundred' from what was basically an Austin family car, though one with sporting characteristics, it was natural that I should turn my attention towards another Austin saloon when planning an addition to my range of Austin-Healeys. Having satisfied an enormous demand for a medium-size sports-car with the 'Hundred' and '100-Six', I was convinced that there would be an equivalent, or even larger, world appetite for a small, economic yet definitely sporting, open vehicle in the lowest price bracket.

Consequently I looked around for an existing car in quantity production to provide the basic components of such a vehicle at the right price. I found what I was searching for with little difficulty—the Austin A35. This pocket-sized saloon with its 948-c.c. four-cylinder engine had been developed over several years and had built up a considerable reputation for sturdy, economic reliability. What is more, its use all over the world meant that, as in the case of the 'Hundred', any car derived from it would never be short of spares and service.

From the '100-Six' to the '3000'

All the design work of the Sprite took place at the Healey Company's Warwick factory, beginning in the latter part of 1956 and using existing A35 components. Two prototypes were built, tested, then submitted to the Austin Company for consideration. Knowing a saleable article when he saw one, Sir Leonard Lord accepted the Sprite as a design, and Austin set about tooling-up to produce them in quantity, as they had the 'Hundred'.

The Sprite started to leave the assembly lines of the British Motor Corporation in the first months of 1958, but the announcement of the new model was delayed and timed to coincide with the arrival of reasonable numbers of cars in the United States and other overseas countries. In that way prospective customers would have a chance of seeing what they were being asked to buy at the first time of asking, not, as so often happens, several months later when the novelty has worn off. From the outset, the Sprite attracted world-wide interest, being received everywhere with open order books. I had another winner on my hands.

The Sprite's engine was a tuned version of the A35 unit, having twin S.U. carburettors and stronger valve springs. With a compression ratio of 8·3 to 1, it produced 42·5 b.h.p. at 5,000 r.p.m., as against the 34 b.h.p. at 4,750 r.p.m. of the A35 saloon, and a top speed of over 80 m.p.h. The four-speed A35 gearbox gave forward ratios of 15·31, 10·02, 5·96 and 4·22 to 1 through a three-quarter floating hypoid final drive of 4·22 to 1. The front suspension of the Sprite was pure A35, with wishbones and coil springs, but not so the rear suspension. This employed quarter-elliptic springs and trailing arms, a design point saving unsprung weight quite considerably and harking back directly to the system used on the pre-war Austin sports-cars. Steering was by rack and pinion, in place of the A35's cam and peg. The Sprite's two-seater body was a pressed-steel shell, combining the functions of a strong chassis in one unit. The entire front of the body was designed to hinge forward from the scuttle, giving easy access to the engine and steering and suspension units; the rear enclosed a fairly spacious luggage locker, accessible only from inside the car. A plastic-coated hood and sidescreens were provided to make the car weather-tight.

As in the case of the 'Hundred', *Autosport*'s John Bolster performed a pre-release test of the Sprite. The following are a few of the remarks he made at the time:

> It is of the greatest possible interest that a really small Austin-Healey is to be offered at a refreshingly modest price . . . In spite of its moderate engine size, the Sprite has a favourable power to weight ratio, for it is considerably lighter than the saloons which this engine normally propels . . . The engine is not highly tuned; however, in standard form the unit will achieve really phenomenal revolutions—I took the needle of the rev. counter far past the 6,000 r.p.m. maximum reading. There was not the slightest sign of valve bounce, even under this treatment, and the smoothness was remarkable.
>
> . . . the four-speed gearbox proved ideal for fast driving . . . the road-holding is good, and the general controllability on wet roads is excellent. The behaviour of the rear axle is far better under these conditions than that of a conventional semi-elliptic rear end.
>
> The Austin-Healey Sprite is not intended for the man who wants a near-racing car—his needs can be met elsewhere. For the enthusiast who requires a small lively open sports car at a moderate price, which is sufficiently 'civilised' for the journey to the office or the evening dress occasion, the Sprite is just the job. It is also ideal as a 'second car' for the big car owner, and I predict an overwhelming demand for it.

Bolster predicted correctly—already the Sprite has found its way into the hands of thousands of sports-car enthusiasts the world over.

Naturally, it was not very long before the Sprite found its way into the entry lists of motoring competitions of all kinds. In private hands, one of them won a race in Ireland within weeks of the car being announced. But the Sprite's first and enormously successful outing under the works banner was in the 1958 Alpine Rally, the event in which the team of Austin-Healey '100-Six' models also distinguished themselves. A more arduous or testing event could hardly have been found for the Sprite's International competition début than the Alpine—the rally which winds in and out and over the Swiss and Italian mountains for a whole week, and which, on this occasion, involved the climbing and crossing of no less than sixty-eight mountain passes. But this did not deter the sprightly Sprites. Living up to the dictionary definition of the adjective, they were most certainly 'full of life and activity; lively; brisk'. They scampered up and down the

highest peaks, evidently as much at home on the mountains as the goats, and every bit as agile, eventually taking the first three places in their class. In the words of one reporter: '. . . no praise is too high for the showing of the crews of the Austin-Healey Sprites—John Sprinzel/W. Cave, Tommy Wisdom/Jack Hay and R. Brookes/R. Wells-West—who took the cheapest and least-tried cars in the rally through to a 100 per cent performance'. And no praise was too high for the Sprites either.

A couple of months later, a privately-entered and privately-modified Sprite was driven in the Marathon of the Road of which we wrote in an earlier chapter. The crew consisted of the modifier, John Sprinzel, and motoring journalist Dick Bensted-Smith, but on the second day out a wheel came adrift and landed in a river. They avoided a crash and came to rest at the roadside, but it was still the end of the event for them.

The story of the Austin-Healey Sprite is necessarily brief as, at the time of writing, this small car has been with us for little more than a year. But in that time, it has built up for itself a sufficiently good reputation for us to be certain that we shall hear a great deal more of it in the future. Perhaps one day it will be as famous as its Austin predecessors of before the war.

The Austin-Healey '3000'

On the first day of July 1959, a new Austin-Healey model was announced by the British Motor Corporation. This bore the type number BN7, but the name given it for public consumption was the Austin-Healey '3000'.

In point of fact, the (considerable) differences between the '3000' and the '100-Six' it superseded were all mechanical. Standing at a distance sufficiently far away to make the radiator grille motif indiscernible, anyone comparing the two cars would be hard put to tell which was which.

The '3000' incorporated two new features:

1. *A six-cylinder 2·9-litre engine.* This marked the first appearance of the B.M.C. C-type engine of 2,912 c.c. which, in due course,

replaced the six-cylinder unit of 2,639 c.c. in the whole range of larger B.M.C. passenger vehicles. In the Austin-Healey the change-over meant an increase in power output of 7 b.h.p. (net), from 117 to 124 b.h.p. at 4,600 r.p.m. on a compression ratio of 9·03 to 1. In terms of performance, the factory claimed that this would propel the '3000' from 0 to 60 m.p.h. in less than 11 secs., and that 100 m.p.h. could be reached in just over 31 secs. The rear axle ratio of 3·545 to 1 gave a road speed of 20·9 m.p.h. per 1,000 r.p.m. Overdrive (at extra cost) was retained on the third and top ratios of the four-speed gearbox, the ratios themselves having been strengthened to deal with the increased torque. Maximum torque, at 3,000 r.p.m., had increased from 149 lbs./ft. to 175 lbs./ft. Incidentally, the increased capacity of the C-type engine had been obtained by enlarging the bore of its predecessor from 79·4 to 83 86 mm. The stroke remained the same—89 mm. And this size engine was welcomed by motor-sport-minded owners, as the '3000' was now just inside the 3-litre International Class.

2. *Disc Brakes.* These were of Girling manufacture and had at last been fitted, though to the front wheels only. The drum brakes at the rear had been found to give excellent stopping under all conditions with the '100-Six', and so were retained on the '3000'. The discs were 11¼ ins. in diameter and were Type 14—of the normal 'two-pot' design, with twin-calliper hydraulic cylinders operating the friction pads on each side of the disc. They made a distinct improvement in arresting the increased power of the car.

The '3000' was made available in both two-seater and four-seater forms, with a hardtop available at extra cost (as were the heater, radio and wire spoke wheels). On the two-seater model, the spare wheel was stowed at the forward end of the boot, leaving a remarkably large amount of luggage space available. A useful theft deterrent on both models was a master switch independently operated from inside the luggage compartment which could, of course, be locked. Thus the car was double-protected from being driven away without the owner's knowledge or permission.

This Austin Healey 100 Six photographed during the 1958 Alpine Rally won its class in the Mille Miglia of that year as well as numerous *mini pa* races on British circuits

This photograph, also taken during the 1958 Alpine Rally, shows Jack Sears's Austin Healey 100 Six leading Mrs Nancy Mitchell's similar car over a rough mountain road

Alpine Rally 1958. The Austin Healey Sprite made its first big competition debut. John Sprinzel and Willie Cave (ABOVE) won their class, whilst Tommy Wisdom and Jack Hay (BELOW) won an Alpine Cup for a penalty free run

5. Austin-Healey Records

Austin-Healey 'Hundred'

Bonneville Salt Flats, Utah, United States. September 1953

12th September. 14-mile Straightaway Course

Driver: Donald Healey

National Class 'Unlimited'—Stock Car

Standing Start:

	Mins.	*Secs.*	*M.P.H.*
1 Km.		34·68	64·51
5 Kms.	1	59·78	93·38
5 Miles	3	1·92	98 94
10 Kms.	3	42·36	100·60
10 Miles	5	47·64	103·55

National Class 'D'—Stock Car

Standing Start:

1 Km.		34 68	64·51
1 Mile		48·53	74·19
5 Kms.	1	59·78	93·38
5 Miles	3	1·92	98·94
10 Kms.	3	42·36	100·60
10 Miles	5	47·64	103·55

American Stock Car 'Unlimited'—Open Car Division

Standing Start:

1 Km.		34 68	64·51
1 Mile		48·53	74·19
5 Kms.	1	59·78	93·38
5 Miles	3	1·92	98·94
10 Kms.	3	42·36	100·60
10 Miles	5	47·64	103·55

Flying Start:

	Mins.	*Secs.*	*M.P.H.*
1 Km.		20·48	109·24
1 Mile		32·96	109·22
5 Kms.	1	42·25	109·39
5 Miles	2	44·77	109·24
10 Kms.	3	24·90	109·17
10 Miles	5	30·92	108·79

American Stock Car Class 'D'—Open Car Division

Standing Start:

1 Km.		34·68	64·51
1 Mile		48·53	74·19
5 Kms.	1	59·78	93·38
5 Miles	3	1·92	98·94
10 Kms.	3	42·36	100·60
10 Miles	5	47·64	103·55

Flying Start:

1 Km.		20·48	109·24
1 Mile		32·96	109·22
5 Kms.	1	42·25	109·39
5 Miles	2	44·77	109·24
10 Kms.	3	24·90	109·17
10 Miles	5	30·92	108·79

14th September. 9·9972-mile Circular Course

International Class 'D'—Non-stock Car

	Drivers	*Hrs.*	*Mins.*	*Secs.*	*M.P.H.*
1,000 Kms.	Healey, Eyston	4	53	33·25	127·00
1,000 Miles	Healey, Eyston, Benett	8	9	9·55	122·66
2,000 Kms.	Healey, Eyston, Benett	10	5	35·54	123·13
2,000 Miles	Healey, Eyston, Benett, Spear	16	15	23·25	123·03
3,000 Kms.	Healey, Eyston, Benett, Spear	15	9	42·685	122·95
6 Hours	Healey, Eyston	742·50 Miles			123·75
12 Hours	Healey, Eyston, Benett, Spear	1,474·96 Miles			122·91

15th and 16th September. 10·0013-mile Circular Course

International Class 'D'—Stock Car

	Drivers	*Hrs.*	*Mins.*	*Secs.*	*M.P.H.*
3,000 Miles	Healey, Cooper, Jackson-Moore, Benett, Eyston	28	47	39·53	104·19
4,000 Kms.		23	49	51·95	104·30
5,000 Kms.		29	53	34·09	103·93
24 Hours		2,503·18 Miles			104·30

Austin-Healey Records

9th September. 14-mile Straightaway Course

Driver: Donald Healey

For American Certificate of Performance—Non-stock Car

Flying Start:

	Secs.	*M.P.H.*
1 Km.	15·69	142·55
1 Mile	25·24	142·64

14th September. 9·9972-mile Circular Course

National Class 'D'—Non-stock Car

Flying Start:

	Drivers	*Hrs.*	*Mins.*	*Secs.*	*M.P.H.*
1,000 Kms.	Healey, Eyston	4	53	3·61	127·22
1,000 Miles	Healey, Eyston, Benett	8	8	48·89	122·75
2,000 Kms.		10	5	15·98	123·19
2,000 Miles	Healey, Eyston, Benett,	16	15	4·40	123·07
3,000 Kms.	Spear	15	9	25·00	122 99
6 Hours	Healey, Eyston	743·04 Miles			123·84
12 Hours	Healey, Eyston, Benett, Spear	1,475·62 Miles			122·97

Standing Start:

1,000 Kms.	Healey, Eyston	4	53	33·25	127·00
1,000 Miles	Healey, Eyston, Benett	8	9	9·55	122·66
2,000 Kms.		10	5	35·54	123·13
2,000 Miles	Healey, Eyston, Benett,	16	15	23·25	123·03
3,000 Kms.	Spear	15	9	42·685	122·95
6 Hours	Healey, Eyston	742·50 Miles			123·75
12 Hours	Healey, Eyston, Benett, Spear	1,474·96 Miles			122·91

15th and 16th September. 10·0013-mile Circular Course

National Class 'D'—Stock Car

Flying Start:

	Drivers	*Hrs.*	*Mins.*	*Secs.*	*M.P.H.*
3,000 Miles	Healey, Cooper, Jackson-Moore, Benett, Eyston	28	47	17·98	104·21
4,000 Kms.		23	49	34·13	104·32
5,000 Kms.		29	53	26·48	103·94
24 Hours		2,503·62 Miles			104·32

Standing Start:

3,000 Miles	Healey, Cooper, Jackson-Moore, Benett, Eyston	28	47	39·53	104·19
4,000 Kms.		23	49	51·95	104·30
5,000 Kms.		29	53	34·09	103·93
24 Hours		2,503·18 Miles			104·30

15th and 16th September

Drivers: Donald Healey, Jackie Cooper, Roy Jackson-Moore, C. Gordon-Benett, G. E. T. Eyston

American Stock Car 'Unlimited'—Open Car Division

Flying Start:

	Hrs.	*Mins.*	*Secs.*	*M.P.H.*
25 Kms.		8	55·44	104·44
25 Miles		14	18·91	104·78
50 Kms.		17	45·42	104·98
50 Miles		28	33·25	105·06
75 Kms.		26	36·59	105·08
75 Miles		42	46·06	105·22
100 Kms.		35	24·71	105·28
100 Miles		57	1·625	105·21
200 Kms.	1	10	53·085	105·19
200 Miles	1	54	5·14	105·18
250 Kms.	1	28	33·94	105·24
250 Miles	2	22	36·76	105·18
300 Kms.	1	46	20·73	105·17
300 Miles	2	51	2·05	105·24
400 Kms.	2	21	47·10	105·18
400 Miles	3	49	40·14	104·50
500 Kms.	2	57	11·91	105·20
500 Miles	4	46	50·41	104·59

	Hrs.	*Mins.*	*Secs.*	*M.P.H.*
1,000 Kms.	5	56	2·78	104·71
1,000 Miles	9	34	43·72	104·40
2,000 Kms.	11	52	54·14	104·59
2,000 Miles	19	8	28·55	104·49
3,000 Kms.	17	49	14·67	104·60
3,000 Miles	28	47	17·98	104·21
4,000 Kms.	23	49	34·13	104·32
5,000 Kms.	29	53	26·48	103·94
1 Hour		105·1849 Miles		105·18
3 Hours		315·5133 Miles		105·17
6 Hours		628·3579 Miles		104·73
12 Hours		1,255·1497 Miles		104·60
24 Hours		2,503·6210 Miles		104·32

Austin-Healey Records

American Stock Car Class 'D'—Open Car Division

Flying Start:

	Hrs.	*Mins.*	*Secs.*	*M.P.H.*
25 Kms.		8	55·44	104·44
25 Miles		14	18·91	104·78
50 Kms.		17	45·42	104·98
50 Miles		28	33·25	105·06
75 Kms.		26	36·59	105·08
75 Miles		42	46·06	105·22
100 Kms.		35	24·71	105·28
100 Miles		57	1·625	105·21
200 Kms.	1	10	53·085	105·19
200 Miles	1	54	5·14	105·18
250 Kms.	1	28	33·94	105·24
250 Miles	2	22	36·76	105·18
300 Kms.	1	46	20·73	105·17
300 Miles	2	51	2·05	105·24
400 Kms.	2	21	47·10	105·18
400 Miles	3	49	40·14	104·50
500 Kms.	2	57	11·91	105·20
500 Miles	4	46	50·41	104·59
1,000 Kms.	5	56	2·78	104·71
1,000 Miles	9	34	43·72	104·40
2,000 Kms.	11	52	54·14	104·59
2,000 Miles	19	8	28·55	104·49
3,000 Kms.	17	49	14·67	104·60
3,000 Miles	28	47	17·98	104·21
	Hrs.	*Mins.*	*Secs.*	*M.P.H.*
4,000 Kms.	23	49	34·13	104·32
5,000 Kms.	29	53	26·48	103·04
1 Hour		105·1849 Miles		105·18
3 Hours		315·5133 Miles		105·17
6 Hours		628·3579 Miles		104·73
12 Hours		1,255·1497 Miles		104·60
24 Hours		2,503·6210 Miles		104·32

15th and 16th September. 10·0013-mile Circular Course

Drivers: Donald Healey, Jackie Cooper, Roy Jackson-Moore, C. Gordon-Benett, G. E. T. Eyston.

For American Certificate of Performance—Stock Car

Flying Start:

30 Hours 3,117·9923 Miles 103·93 M.P.H.

All performances certified by the Contest Board of the American Automobile Association.

Austin-Healey '100S'

Bonneville Salt Flats, Utah, United States. August 1954

International and American National Class 'D' Records

International

Flying Start:

5 Kms.	182·26 m.p.h.	100S Modified
5 Miles	183·78 ,,	,, ,,
10 Kms.	183·84 ,,	,, ,,
10 Miles	181·08 ,,	,, ,,

Standing Start:

50 Kms.	151·32 m.p.h.	100S Modified
50 Miles	153·88 ,,	,, ,,
100 Kms.	154·63 ,,	,, ,,
100 Miles	155·95 ,,	,, ,,
200 Kms.	156·22 ,,	,, ,,
1,000 Kms.	132·81 ,,	100S
1,000 Miles	132·59 ,,	,,
2,000 Kms.	132·72 ,,	,,
2,000 Miles	132·38 ,,	,,
3,000 Kms.	132·18 ,,	,,
3,000 Miles	132·16 ,,	,,
4,000 Kms.	132·02 ,,	,,
5,000 Kms.	132·27 ,,	,,
1 Hour	156·97 ,,	100S Modified
6 Hours	133·06 ,,	100S
12 Hours	132·47 ,,	,,
24 Hours	132·29 ,,	,,

National

Flying Start:

1 Km.	192·74 m.p.h.	100S Modified
5 Kms.	182·26 ,,	,, ,,
5 Miles	183·78 ,,	,, ,,
10 Kms.	183·84 ,,	,, ,,
10 Miles	181·08 ,,	,, ,,
25 Kms.	157·23 ,,	,, ,,
25 Miles	157·37 ,,	,, ,,
50 Kms.	157·44 ,,	,, ,,
50 Miles	157·77 ,,	,, ,,
75 Kms.	157·78 ,,	,, ,,
75 Miles	158·08 ,,	,, ,,
100 Kms.	157·87 ,,	,, ,,
100 Miles	157·68 ,,	,, ,,
200 Kms.	157·94 ,,	,, ,,
250 Kms.	158·05 ,,	,, ,,
1,000 Kms.	132·99 ,,	100S

Austin-Healey Records

1,000 Miles	132·70 m.p.h.	100S
2,000 Kms.	132·80 ,,	,,
2,000 Miles	132·44 ,,	,,
3,000 Kms.	132·25 ,,	,,
3,000 Miles	132·21 ,,	,,
4,000 Kms.	132·06 ,,	,,
5,000 Kms.	132·30 ,,	,,
1 Hour	157·92 ,,	100S Modified
6 Hours	133·21 ,,	100S
12 Hours	132·54 ,,	,,
24 Hours	132·33 ,,	,,

Standing Start:

25 Kms.	145·61 m.p.h.	100S Modified
25 Miles	149·85 ,,	,, ,,
50 Kms.	151·32 ,,	,, ,,
50 Miles	153·87 ,,	,, ,,
75 Kms.	153·52 ,,	,, ,,
75 Miles	155·27 ,,	,, ,,
100 Kms.	154·63 ,,	,, ,,
100 Miles	155·95 ,,	,, ,,
200 Kms.	156·22 ,,	,, ,,
200 Miles	133·74 ,,	100S
250 Kms.	156·93 ,,	100S Modified
250 Miles	133·84 ,,	100S
300 Kms.	133·74 ,,	,,
300 Miles	133·95 ,,	,,
400 Kms.	133·83 ,,	,,
400 Miles	134·10 ,,	,,
500 Kms.	133·95 ,,	,,
500 Miles	132·62 ,,	,,
1,000 Kms.	132·81 ,,	,,
1,000 Miles	132·59 ,,	,,
2,000 Kms.	132·72 ,,	,,
2,000 Miles	132·38 ,,	,,
3,000 Kms.	132·18 ,,	,,
4,000 Kms.	132·02 ,,	,,
5,000 Kms.	132·27 ,,	,,
1 Hour	156·97 ,,	100S Modified
3 Hours	134·10 ,,	100S
6 Hours	133·06 ,,	,,
12 Hours	132·47 ,,	,,
24 Hours	132·29 ,,	,,

International and National

Flying Start:

5 Kms.	179·63 m.p.h.	100S Modified
1 Mile	192·62 ,,	,, ,, *
1 Km.	143·22 ,,	100S
1 Mile	143·13 ,,	,, *

* For American Certificate of Performance.

Austin-Healey 'Hundred'

Bonneville Salt Flats, Utah, United States. August 1956

International Class 'D' Records

Standing Start:

	Drivers	*Hrs.*	*Mins.*	*Secs.*	*M.P.H.*
200 Miles	Carroll Shelby	1	18	38·718	152·58
500 Kms.		2	1	52·398	152·95
500 Miles		3	15	54·299	153·14
1,000 Kms.	Carroll Shelby and Roy Jackson-Moore	4	6	56·490	150·98
3 Hours	Carroll Shelby	459·1743 Miles			153·06
6 Hours	Carroll Shelby and Roy Jackson-Moore	875·7409 Miles			145·96

'Speed' car fitted with supercharger

Flying Start:

1 Mile *Driver:* Donald Healey 208·06 m.p.h.

Austin-Healey Sprite

Bonneville Salt Flats, Utah, United States. September 1959

Drivers: Tommy Wisdom, Gus Ehrmann, Ed Leavens

International Class 'G' Records

(Car fitted with Shorrocks supercharger and catalogued parts for competition tuning)

200 Miles	138·15 m.p.h.
500 Kms.	138·85
500 Miles	137·82
1,000 Kms.	138·39
1,000 Miles	138·55
2,000 Kms.	138·86
3 Hours	139·38
6 Hours	139·09
12 Hours	138·75

(Car fitted with sprint engine having higher compression ratio as well as supercharger and tuning parts)

50 Kms.	145·56 m.p.h.
50 Miles	145·56 ,,
100 Kms.	145·08 ,,
100 Miles	146·17 ,,
1 Hour	146·95 ,,

More than forty American National records were also broken.

6. Technical Specifications

Austin-Healey 'Hundred', Series BN1

Engine

Number of cylinders	4.
Size of bore	3·4375 ins. (87·3 mm.).
Length of stroke	4·375 ins. (111·1 mm.).
Capacity	162·2 cu. ins. (2,660 c.c.).
Brake horse power	90 at 4,000 r.p.m.
Maximum torque	144 lbs. ft. at 2,000 r.p.m.
Compression ratio	7·5 to 1.
Firing order	1, 3, 4, 2.
Valves	Overhead, pushrod operation.
Valve springs	Double.
Valve timing inlet	Opens 5° B.T.D.C. Closes 45° A.B.D.C.
Valve timing exhaust	Opens 40° B.B.D.C. Closes 10° A.T.D.C.
Valve clearance (cold)	0·012 in. between rocker and valve stem.

Lubrication

Type of system	Wet sump.
Oil pump	Straight gear.
Oil pressure (normal running)	Not less than 50/55 lbs./sq. in.
Oil filter	Full flow.
Filter capacity	1¼ Imp. pints (1·5 U.S. pints).
Sump capacity	11¾ Imp. pints (14·11 U.S. pints).
Pressure relief valve	Spring-loaded plunger.

Fuel System

Carburettors	Twin S.U. at 20° angle.
Needle model	Q.W.
Pump	S.U. Electric.
Model	'L' High Pressure.
Tank Capacity	12 Imp. gals. (14·4 U.S. gals.).
Air cleaner	Oil wetted type.

Cooling System

Radiator	Flat tube type, pressurized to 7 lbs./sq. in.
Circulation	Pump assisted thermo-syphon.
Fan	4 blade, belt drive.
Control	Bellows type thermostat.
Running temperature	185°–194° F. (75°–80° C.).
Capacity	20 Imp. pints (24 U.S. pints).

Ignition

Coil	Lucas B.12.
Distributor	Lucas D.M.2.
Contact breaker gap	0·014–0·016 in.
Ignition timing	6° B.T.D.C.
Sparking plugs	Champion NA8.
Plug gap	0·025 in.

Clutch

Type	Borg and Beck single dry plate.
Diameter	9 ins.
Frictional area	36·8 sq. ins. × 2.
Withdrawal bearing	Self-lubricating carbon ring.
Pedal free movement	$\frac{11}{16}$ in.

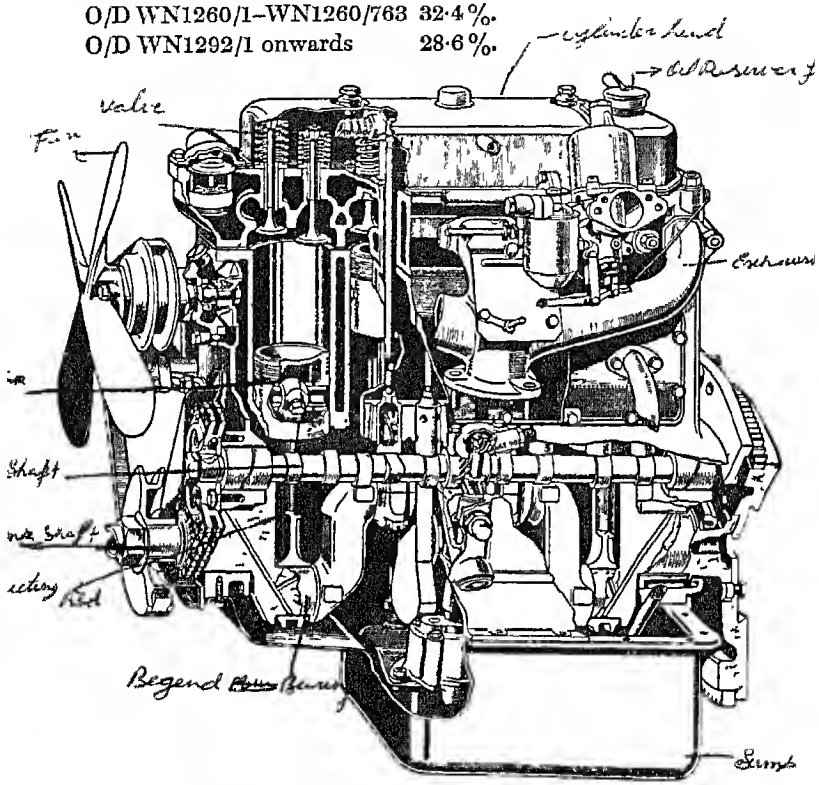
Gearbox

Number of gears	3 forward, 1 reverse.
Gear ratios: 1st	2·25.
2nd	1·42
3rd	Direct.
reverse	4·981.
Oil capacity including overdrive	4½ Imp. pints (5·35 U.S. pints).

Technical Specifications

Overdrive

Make	Laycock de Normanville.
Operation	Hydraulic.
Control	Automatic over-riding switch.
Cut-in speed	40 m.p.h.
Reduction in engine speed:	
O/D WN1260/1–WN1260/763	32·4%.
O/D WN1292/1 onwards	28·6%.



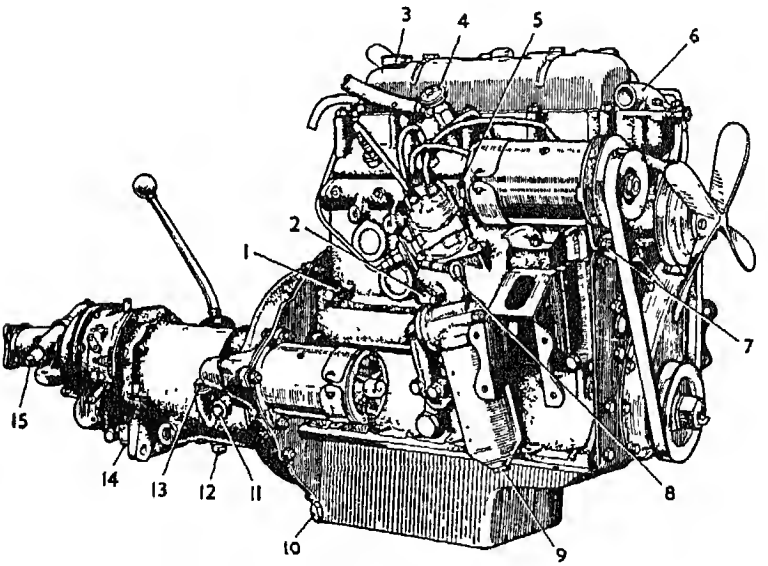
Engine of the Austin-Healey 'Hundred' BN1

Propeller Shaft

Make	Hardy Spicer.
Type	Open shaft.
Bearings	Needle roller.
Universal joints	2.

Rear Axle

Type	Spiral bevel.
Oil capacity	2¼ Imp. pints (2·7 U.S. pints).
Overall gear ratios:	
1st	9·22.
2nd	5·82.
2nd and overdrive (32·4%)	4·43.
2nd and overdrive (28·6%)	4·56.
3rd	4·125.
3rd and overdrive (32·4%)	3·12.
3rd and overdrive (28·6%)	3·28.
reverse	20·5.

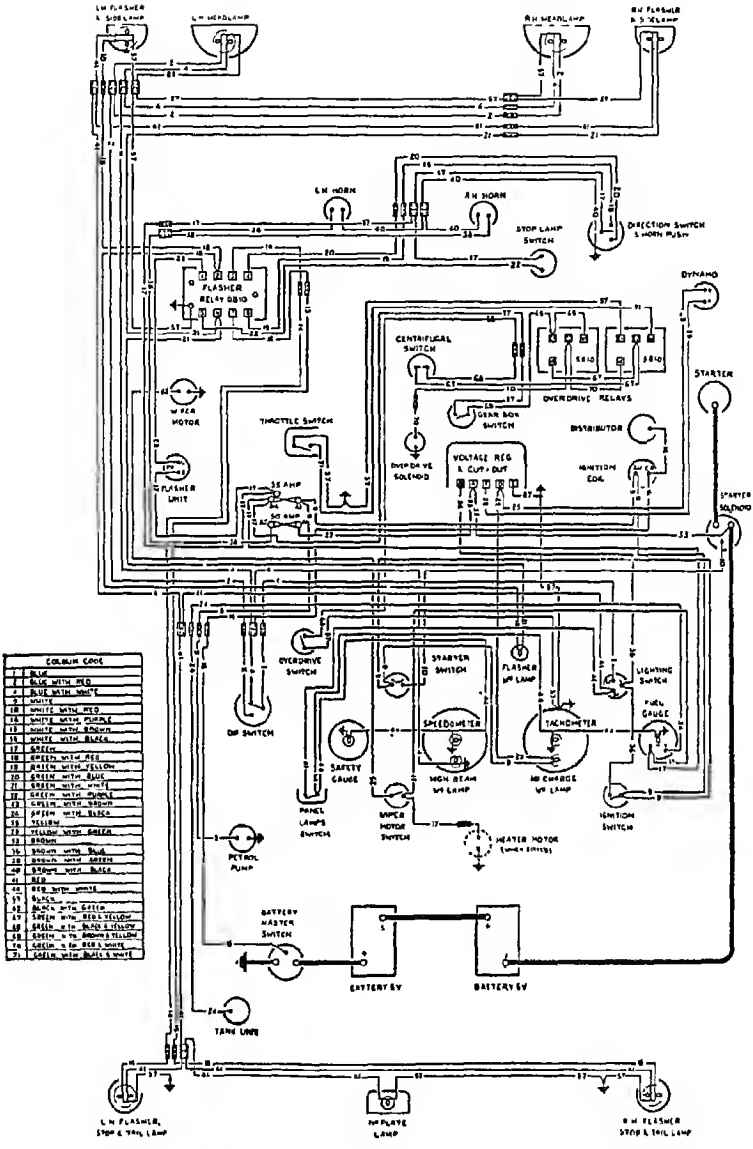


Power Unit of the Austin-Healey 'Hundred' BN1
(right-hand side view)

1. Oil pressure gauge union
2. Cylinder-block drain
3. Oil-reservoir filler cap
4. Heater valve
5. Dynamo lubricator
6. Thermostat
7. Fan-belt adjusting nuts
8. Dipstick
9. Oil-filter securing bolt
10. Oil-reservoir drain plug
11. Clutch-operating shaft
12. Gearbox drain plug
13. Gearbox oil-filler plug
14. Overdrive drain
15. Speedometer-drive connection

Technical Specifications

Steering	
Type	Burman cam and lever.
Ratio	12·6 to 1.
Steering wheel diameter	16½ ins.
Turning circle	35 ft.
Front wheel alignment	Toe-in $\frac{1}{16}$–$\frac{1}{8}$ in.
Suspension	
Front	Independent; coil spring.
Rear	Semi-elliptic leaf spring.
Shock absorbers	Armstrong double-acting hydraulic.
Stabilizers: front	Anti-roll torsion bar.
rear	Anti-sway bar.
Brakes	
Make	Girling.
Type	Hydraulic—two leading shoe front.
Drum diameter	11 ins.
Total frictional area	145·2 sq. ins.
Handbrake	Mechanical, rear wheels only.
Wheels	
Type	Wire spoked.
Hub	Knock-on cap.
Tyres	
Size	5·90 × 15.
Pressure: front (normal)	20 lbs./sq. in.
rear (normal)	23 lbs./sq. in.
Chassis	
Type	Integral body and frame.
Frame	Box section with cross bracing.
Electrical Equipment	
Battery	2 × 6 volt positive earth.
Capacity	50 amp. hrs. at 10-hr. rate.
Dynamo	Lucas type C45-PV5.
Starter	Lucas type M418G.
Cut-out and regulator	Lucas type RB106.



Wiring diagram of the Austin-Healey 'Hundred' BN1

Technical Specifications

Fuse unit	Lucas type SF6.
Heater	Smiths type CHS. 880/11.
Windscreen wipers	Lucas.

Principal Dimensions

Wheelbase	7 ft. 6 ins.
Overall length	12 ft. 7 ins.
Overall height (hood raised)	4 ft. 1¼ ins.
Height over scuttle	2 ft. 11 ins.
Overall width	5 ft. ½ in.
Height over windscreen	3 ft. 11⅞ ins.
Track: front	4 ft. 1 in.
rear	4 ft. 2¾ ins.
Ground clearance	5½ ins.
Dry weight (approx.)	2,176 lbs.

Engine number: Located on right-hand side of cylinder block.
Chassis number: Located on right-hand side of chassis frame at front end (i.e. in the engine compartment).

Austin-Healey 'Hundred', Series BN2

Specification as for Series BN1, except:

Cooling System

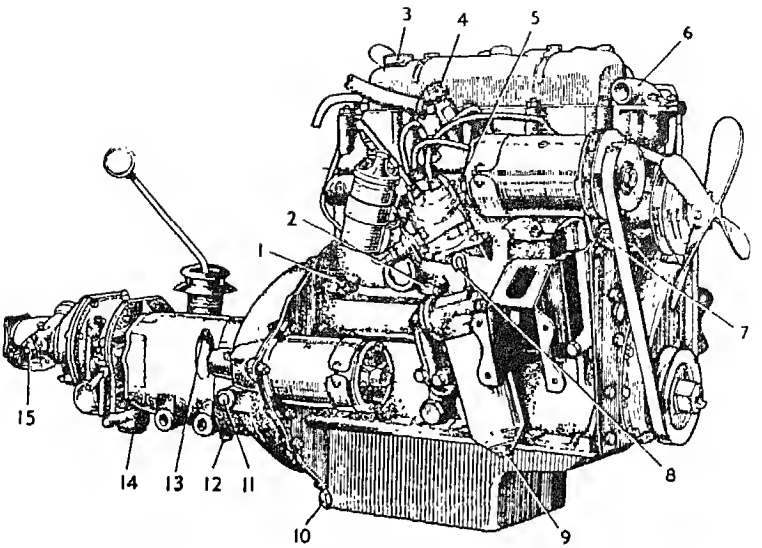
Running temperature	175° F.

Gearbox

Number of gears	4 forward; 1 reverse.
Gear ratios: 1st	3·07.
2nd	1·91.
3rd	1·33.
4th	Direct.
reverse	4·17.
Oil capacity (including overdrive)	5¼ pints (6·3 U.S. pints).

Overdrive

Make	Laycock de Normanville.
Type	Hydraulic.

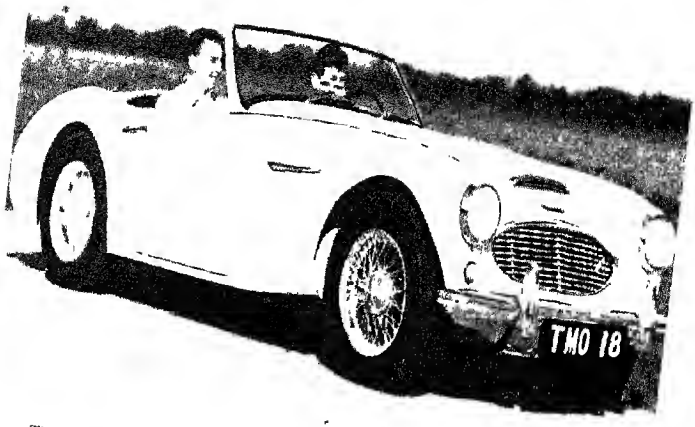


Power Unit of the Austin-Healey 'Hundred' BN2
(right-hand side view)

1. Oil-pressure-gauge union
2. Cylinder-block drain
3. Oil-reservoir filler cap
4. Heater valve
5. Dynamo lubricator
6. Thermostat
7. Fan-belt adjusting nuts
8. Dipstick
9. Oil-filter securing bolt
10. Oil-reservoir drain plug
11. Clutch-operating shaft
12. Gearbox drain plug
13. Gearbox oil-filler plug
14. Overdrive drain
15. Spoodometer-drive connection

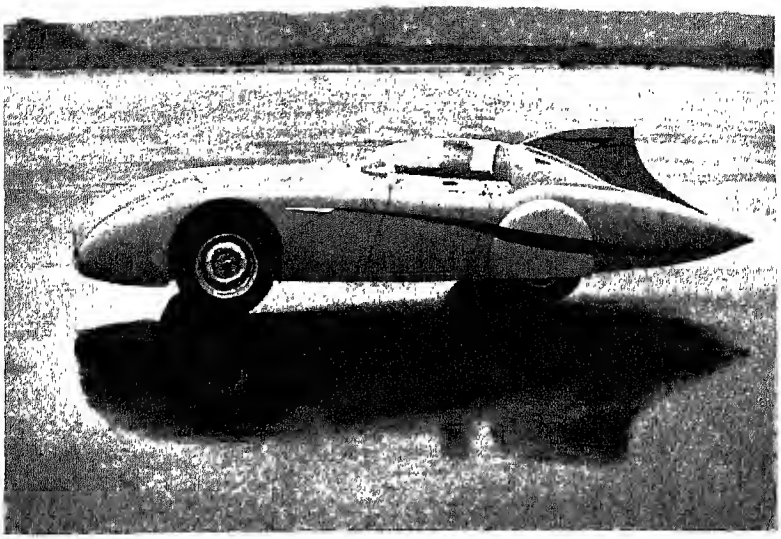
Rear Axle

Type (from chassis No. BN221536)	Hypoid.
Oil capacity	3 Imp. pints (3·6 U.S. pints).
Overall gear ratios:	
1st	12·6.
2nd	7·85.
3rd	5·46.
3rd and overdrive	4·24.
4th	4·1.
4th and overdrive	3·18.
reverse	17·1.



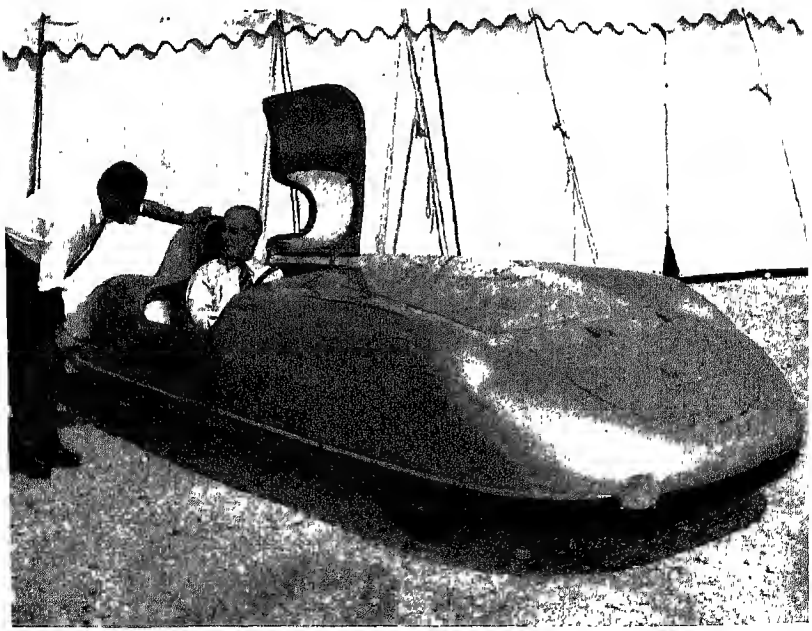
The Austin Healey 3000 the latest of the line from Warwick and Longbridge, with 2912 cc motor the bonnet and disc brakes on the front wheels

The Austin Healey record breaking car of 1956 at Bonneville Salt Flats, Utah
From left to right Carroll Shelby, Roy Jackson Moore and Donald Healey,
who drove the car



Geoffrey Healey making a test run in the aerodynamic Austin-Healey record-breaking car

Tommy Wisdom sitting in the special Austin-Healey Sprite which broke many International Class records at Bonneville Salt Flats in September 1959. Standing by the car is Alec Hounslow, of the Development Department of B.M.C.



Austin-Healey 'Hundred', Series BN1 and BN2. Le Mans Modifications

With Le Mans modifications (larger carburettors, high-lift camshaft, etc.), power output raised to 110 b.h.p. at 4,500 r.p.m.

Austin-Healey '100M'

Specification as for Series BN1, with following modifications:

Engine

8·1 to 1 high compression pistons.
High-lift camshaft.
Twin $1\frac{3}{4}$-in. H6 S.U. carburettors.
Special inlet manifolds.
Special distributor with modified automatic advance curve.
Steel-faced cylinder-head gasket.

Suspension

Race-type anti-roll bar.
Special setting front shock absorbers.

Coachwork

Louvred bonnet.
Le Mans regulation bonnet strap.
Two-tone paint finish.

Power output: 110 b.h.p. at 4,500 r.p.m.

Overall gear ratios (with overdrive and 4·125 rear axle ratio):

1st	9·28.
2nd	5·85.
2nd (overdrive)	4·56.
3rd	4·125.
3rd (overdrive)	3·28.
reverse	20·53.

Top gear m.p.h. per 1,000 r.p.m.: 17·92 (without overdrive). Overdrive comes into operation at 40 m.p.h.

Austin-Healey '100S'

Engine

Number of cylinders	4.
Bore	3·4375 ins. (87·3 mm.).

Stroke	4·375 ins. (111·1 mm.).
Capacity	162·2 cu. ins. (2·660 c.c.).
Brake horse power	130 at 4,700 r.p.m.
Maximum torque	168 lbs. ft. at 2,500 r.p.m.
Compression ratio	8·4 : 1.
Firing order	1, 3, 4, 2.
Valves	Overhead, pushrod operated, double springs.
Valve timing: Inlet opens	10° B.T.D.C. Before Top Dead Centre
Inlet closes	50° A.B.D.C. After Bottom Dead Centre
Exhaust opens	45° B.B.D.C. Before Top " "
Exhaust closes	15° A.T.D.C. After Bottom " "
Valve clearance (cold)	0·015 in.
lift	0·535 in.
Piston area	37 2 sq. ins.
Top gear m.p.h. per 1,000 r.p.m.	26·6 m.p.h.

Lubrication

Pump	Straight gear or rotor.
Running pressures	50 to 55 lbs./sq. in.
Sump capacity	20 Imp. pints (24 U.S. pints).
Filter	Full flow.

Fuel System

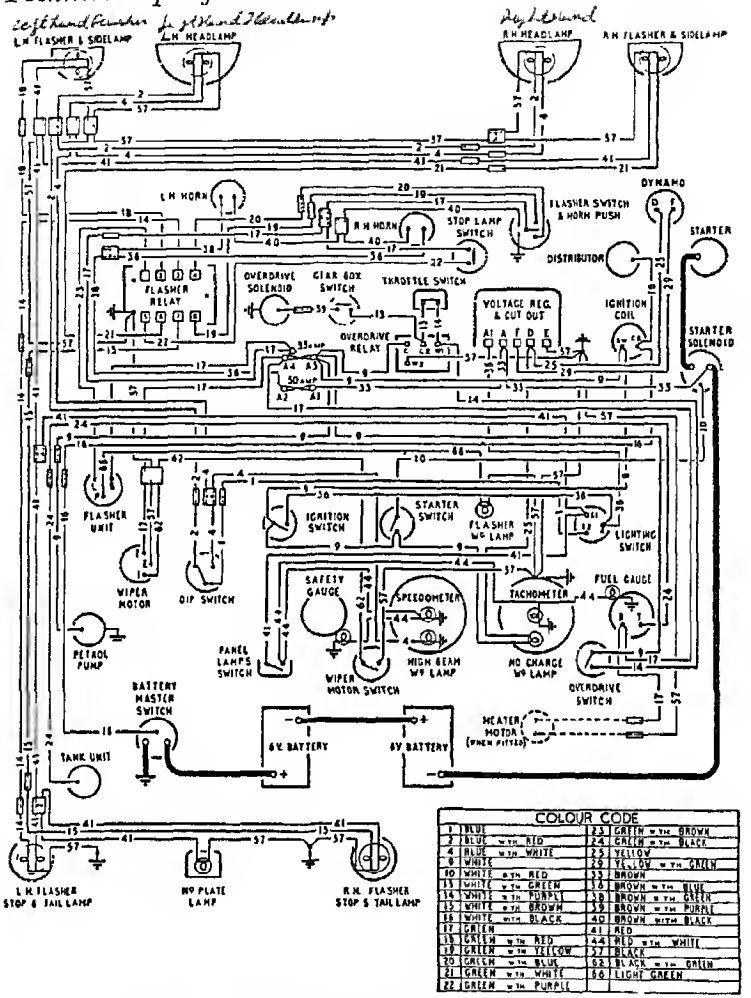
Carburettors	Twin S.U.H.6.
Pump	2 S.U. Electric.
Model	LCS High Pressure.
Tank capacity	20 Imp. gals. (24 U.S. gals.).

Cooling System

Circulation	Pump and fan.
Capacity	20 Imp. pints (24 U.S. pints).

Ignition

Coil	Lucas B12.
Distributor	Lucas DM2.
Contact-breaker gap	0·014–0·016 in.
Timing	6° B.T.D.C.
Sparking plugs	NA. 10.
Plug gap	0·025 in.



Wiring Diagram of the Austin-Healey 'Hundred' BN2

Clutch

Make	Borg and Beck.
Type	Single dry plate.
Diameter	10 ins.
Withdrawal bearing	Self-lubricating carbon ring.

Gearbox

Number of gears	4 forward; 1 reverse.
Gear ratios: 1st	3·08.
2nd	1·91.
3rd	1·33.
top	Direct.
Oil capacity	4½ pints (5·35 U.S. pints).

Propeller Shaft

Make	Hardy Spicer.
Type	Open shaft; needle roller bearings

Rear Axle

Type	Spiral bevel.
Oil capacity	2¼ Imp. pints (2·7 U.S. pints).
Overall gear ratios: 1st	8·98.
2nd	5·57.
3rd	3·88.
top	2·92.
reverse	12·2.

Steering

Type	Burman Cam and Lever.
Ratio	12·6 : 1.
Steering wheel diameter	16½ ins.
Turning circle	35 ft.
Toe-in	$\frac{1}{16}$–$\frac{1}{8}$ in.

Suspension

Front	Independent: coil spring.
Rear	Semi-elliptic leaf spring.
Shock absorber—front and rear	Armstrong double acting hydraulic RXP.
Stabilizer: front	Anti-roll torsion bar.
rear	Anti-sway bar.

Brakes

Make	Dunlop.
Type	Hydraulic disc.
Handbrake	Mechanical, rear wheels only.

Technical Specifications

Wheels

Type	Wire spoked.
Hub	Knock-on cap.

Tyres

Size	5·50 × 15 racing.
Pressure: front (normal)	28 lbs./sq. in.
rear (normal)	32 lbs./sq. in.

Chassis

Type	Integral body and frame.
Frame	Box section and cross bracing.

Electrical Equipment

Battery	1 × 12-volt positive earth.
Capacity	38 amp. hrs. at 10-hr. rate.
Dynamo	Lucas type C.39 PV2.
Starter	Lucas type M.418.G.
Cut-out and regulator	Lucas type RB.106.
Fuse unit	Lucas type SF.6.

Principal Dimensions

Wheelbase	7 ft. 6 ins.
Track: front	4 ft. $1\frac{5}{8}$ ins.
rear	4 ft. $2\frac{3}{4}$ ins.
Overall length	12 ft. 4 ins.
Overall width	5 ft. $0\frac{1}{2}$ in.
Height over scuttle	2 ft. $11\frac{7}{8}$ ins.
Height over windshield	3 ft. 6 ins.
Ground clearance	$5\frac{1}{2}$ ins.
Turning circle	35 ft.
Dry weight	1,888 lbs.
Kerb weight (water, oil and 5 gals. petrol)	1,988 lbs.

Austin-Healey '100-Six', Series BN4

Engine

Number of cylinders	6.
Bore	3·125 ins. (79·4 mm.).
Stroke	3·5 ins. (89·0 mm.).

Capacity	161·1 cu. ins. (2639 c.c.).
Brake horse power	102 at 4,600 r.p.m.*
Maximum torque	142 lbs. ft. at 2,400 r.p.m.*
Compression ratio	8·25 to 1*.
6 Cylinder. Firing order	1, 5, 3, 6, 2, 4.
Valves	Overhead, pushrod operation.
Valve timing: Inlet opens	5° B.T.D.C. Before Top Dead Centre
Inlet closes	45° A.B.D.C. After Bottom " "
Exhaust opens	40° B.B.D.C. Before " " "
Exhaust closes	10° A.T.D.C. After Top " " "
Valve clearance (hot)	0·012 in.

Lubrication

Type	Wet sump.
Pump	Rotor.
Pressure (hot)	55 to 60 lbs./sq. in.
Filter	Full flow.
Sump capacity	12 Imp. pints (14·4 U.S. pints).
Filter capacity	1¼ Imp. pints (1·5 U.S. pints).

Fuel System

Pump	S.U. Electric, type HP.
Carburettors	Twin S.U., type H4.*
Needle	AJ.
Tank capacity	12 Imp. gals. (14·4 U.S. gals.).
Air cleaners	Twin 'pancake'.

Cooling System

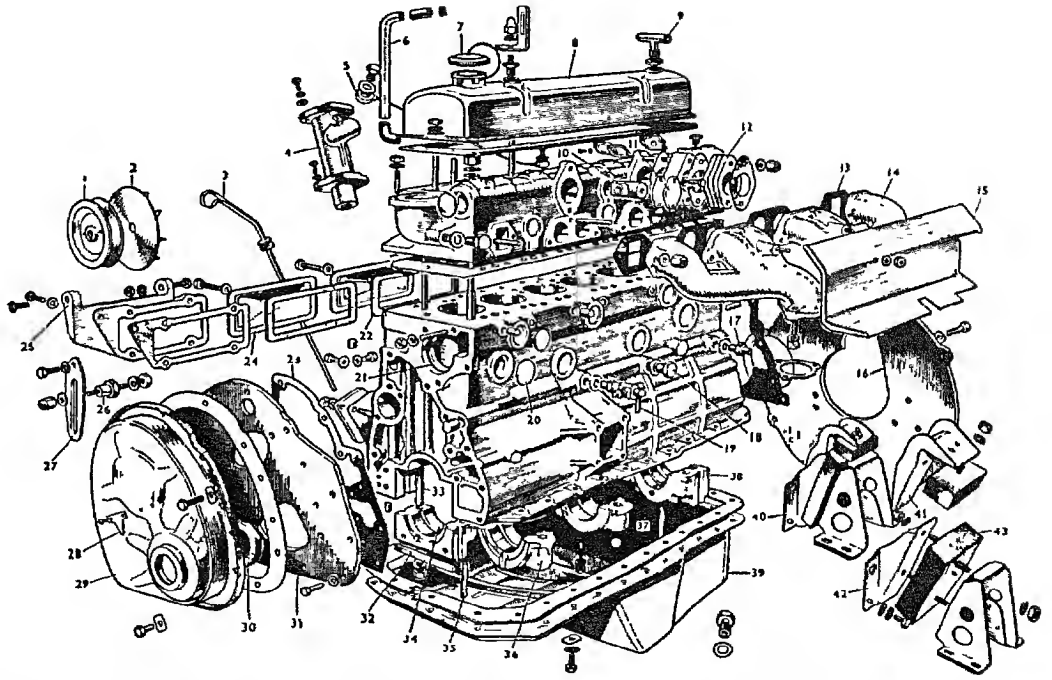
Type	Pressurized.
Circulation	Pump, fan and thermostat.
Normal operating temperature	175° F. (80° C.).
Capacity	20 Imp. pints (24 U.S. pints).

Ignition System

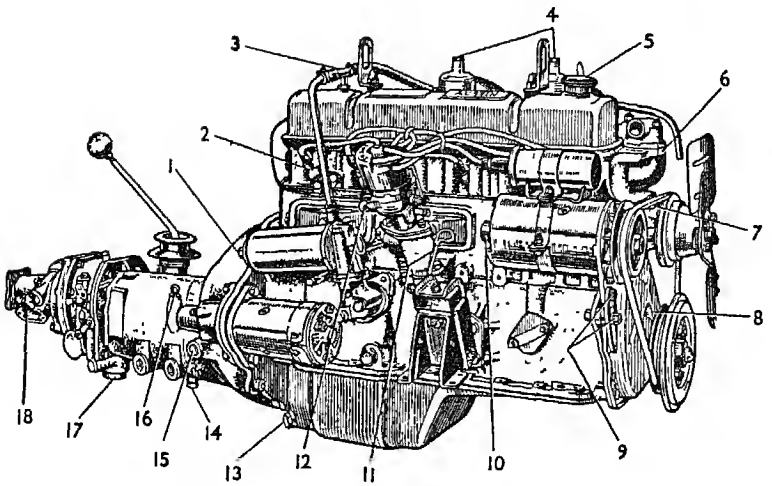
Type	Lucas 12 volt.
Coil	Lucas HA12.
Distributor	Lucas DM6.
Contact-breaker cap	0·014–0·016 in.
Timing	5° B.T.D.C. fully retarded.
Sparking plugs	Champion N5 long reach.
Plug gap	0·024 in.

* See footnote on page 84.

The Austin-Healey '100-Six' Engine (exploded)



1. Generator pulley
2. Generator fan
3. Dipstick
4. Tachometer housing
5. Tachometer oil-feed pipe
6. Heater pipe
7. Oil-filler cap
8. Rocker cover
9. Breather pipe
10. Balance plug
11. Balance-plug cover
12. Inlet manifold joint
13. Exhaust manifold joint
14. Exhaust manifold
15. Deflector plate
16. Engine back plate
17. Oil-gauge pipe connection
18. Plug, oil filter feed hole
19. Cylinder-block drain tap
20. Welch plug
21. Cylinder block
22. Tappet-cover joint
23. Engine front plate joint washer
24. Tappet cover
25. Generator mounting
26. Generator mounting stud
27. Generator swinging link
28. Timing pointer
29. Front cover
30. Felt washer
31. Engine front plate
32. Seal for main bearing
33. Front main bearing stud
34. Front main bearing cap
35. Sump joint washer
36. Centre front main bearing cap
37. Centre rear main bearing cap
38. Rear main bearing cap
39. Sump
40. Engine mounting bracket
41. Bracket carrying mounting rubber
42. Bracket for mounting rubber
43. Engine mounting rubber



Power Unit of the Austin-Healey '100-Six'
(right-hand side view)

1. Oil-filter securing bolt
2. Heater-pipe outlet
3. Fume-extractor pipe
4. Carburettor hydraulic dampers
5. Oil-filler cap
6. Thermostat housing
7. Water-pump oiling plug
8. Engine timing mark
9. Fan-belt adjusting nuts
10. Dynamo oiling hole
11. Oil-level dipstick
12. Ignition micrometer adjuster
13. Oil-sump drain plug
14. Gearbox drain plug
15. Clutch cross shaft
16. Gearbox filler plug and dipstick
17. Overdrive drain plug
18. Speedometer-drive connection

Clutch

Type	Borg and Beck single dry plate.
Diameter	9 ins.
Operation	Hydraulic.

Gearbox

Type	4-speed, synchromesh on 2nd, 3rd and top.
Gear ratios: 1st	3·076.
2nd	1·913.
3rd	1·333.
top	1·0.
reverse	4·116.
Oil capacity (with overdrive unit)	5¼ Imp. pints (6·3 U.S. pints).

Oil capacity (without overdrive unit)	4 Imp. pints (4·8 U.S. pints).

Overdrive Unit (optional extra)

Type	Laycock de Normanville, electrically controlled.

Propeller Shaft

Type	Hardy Spicer open shaft.

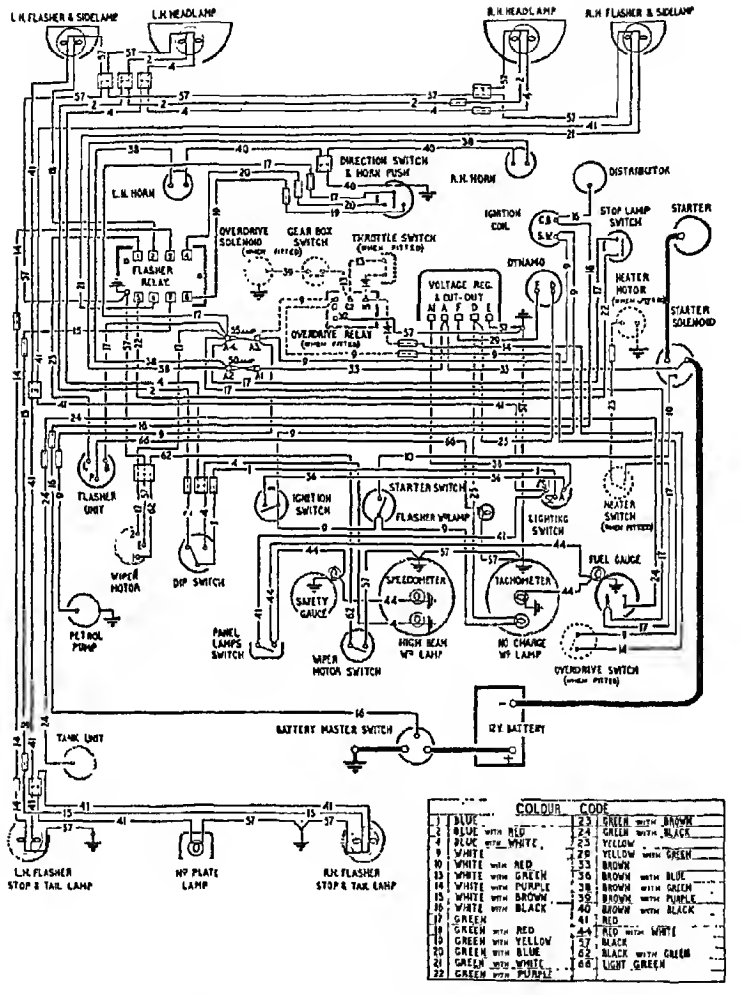
Rear Axle (with overdrive)

Type	Hypoid bevel three-quarter floating.
Oil capacity	3 Imp. pints (3·6 U.S. pints).
Overall gear ratios:	
1st	12·6.
2nd	7·84.
3rd	5·47.
overdrive 3rd	4·24.
4th	4·1.
overdrive 4th	3·19.
reverse	17·1.
Road speeds at 1,000 r.p.m.:	
1st	5·86 m.p.h.
2nd	9·42 m.p.h.
3rd	13·52 m.p.h.
overdrive 3rd	17·39 m.p.h.
4th	18·02 m.p.h.
overdrive 4th	23·18 m.p.h.

Rear Axle (without Overdrive)

Type	Hypoid bevel three-quarter floating.
Oil capacity	3 Imp. pints (3·6 U.S. pints).
Overall gear ratios: 1st	12·02.
2nd	7·48.
3rd	5·21.
4th	3·91.
reverse	16·4.

Road speeds at 1,000 r.p.m.:	
1st	6·15 m.p.h.
2nd	9·88 m.p.h.
3rd	14·18 m.p.h.
4th	18·90 m.p.h.
Steering	
Type	Cam and peg.
Ratio	14 to 1.
Track toe-in	$\frac{1}{16}$—$\frac{1}{8}$ in.
Adjustment	Screw and shim.
Suspension	
Front: Type	Independent by coil springs and wishbones.
Castor angle	$1\frac{3}{4}°$.
Camber angle	1°.
Swivel pin inclination	$6\frac{1}{2}°$.
Rear: Type	Semi-elliptic underslung leaf springs.
Shock Absorbers	
Type	Armstrong double-acting hydraulic piston.
Brakes	
Type	Girling hydraulic, two leading shoes on front.
Drum diameter	11 ins.
Total frictional area	188 sq. ins.
Handbrake	Mechanical, rear wheels only.
Wheels	
Type	15 × 4J ventilated steel disc, or optional alternative 15 × 4J wire.
Tyres	
Type	5·90×15 tubeless, or optional alternative 5·90×15 Roadspeed.
Pressures: front	20 lbs./sq. in.
rear	28 lbs./sq. in.



Wiring Diagram of the Austin-Healey '100-Six'

Chassis

Type	Body integral with cross-braced box section frame.

Electrical Equipment

Type	Lucas 12 volt.
Battery	Lucas GTW9A.*
Capacity	51 amp. hrs. at 10-hr. rate.
Dynamo	Lucas type C45PV5.
Starter motor	Lucas type M418G.
Cut-out and regulator	Lucas type RB 106/2.
Fuse unit	Lucas type SF6.
Flasher unit	Lucas type FL5.
Windscreen wipers	Lucas type DR2.

Dimensions

Wheelbase	7 ft. 8 ins.
Overall length	13 ft. 1½ ins.
Overall height (hood raised)	4 ft. 1 in.
Overall height (hood lowered)	3 ft. 10 ins.
Overall width	5 ft. 0½ in.
Height over scuttle	2 ft. 11⅞ ins.
Ground clearance	5½ ins.
Track, front	4 ft. 0¾ in.
Track, rear	4 ft. 2 ins.
Turning circle	35 ft.
Approx. weight (with overdrive and wire wheels)	2,436 lbs.

Engine Number: Located on right-hand side of cylinder block.

Chassis Number: Located on right-hand side of chassis frame at front end (i.e. in the engine compartment).

* Austin-Healey '100-Six' (with six-port cylinder-head engine) in current production incorporates the following alterations to the BN4 specification:

Brake horse power	117 at 5,000 r.p.m.
Max. torque	150 lbs. ft. at 3,000 r.p.m.
Compression ratio	8·5 to 1.
Carburettors	Twin S.U. type HD6 (1¾ ins. semi-downdraught).
Battery	Two single 6-volt Lucas units.

Austin-Healey Sprite

Engine

Number of cylinders	4.
Bore	2·48 ins. (62·9 mm.).
Stroke	3·00 ins. (76·2 mm.).
Capacity	57·82 cu. ins. (948 c.c.).
B.H.P.	45 at 5,500 r.p.m.
Maximum torque	52 lbs. ft. at 3,200 r.p.m.
Compression ratio	8·3 to 1.
Firing order	1, 3, 4, 2.
Valves	Overhead pushrod operation.
Valve timing: Inlet opens	5° B.T.D.C.
Inlet closes	45° A.B.D.C.
Exhaust opens	40° B.B.D.C.
Exhaust closes	10° A.T.D.C.
Valve clearance (hot or cold)	0·012 in. (0·305 mm.).

Lubrication

Type	Wet sump.
Pump	Hobourn Eaton or Burman rotor type.
Pressure (normal): running	60 lbs./sq. in.
idling	15 lbs./sq. in.
Filter	Full flow.
Sump capacity	6 Imp. pints (7·2 U.S. pints).
Filter capacity	1 Imp. pint (1·2 U.S. pints).

Fuel System

Pump	A.C. Sphinx 'Y'.
Carburettors	Two S.U. semi-downdraught.
Model	H1.
Needle	GG.
Tank capacity	6 Imp. gals. (7·2 U.S. gals.).

Cooling System

Type	Pressurized.
Circulation	Pump, fan and thermostat.
Normal operating temperature	164° F. (73° C.).
Capacity	10 Imp. pints (12 U.S. pints).

Ignition	
Type	Lucas 12 volt.
Coil	Lucas type LA12.
Distributor	Lucas type DM2 PH4.
Contact-breaker gap	0·014–0·016 in.
Timing	5° before T.D.C. (Premium fuel).
Sparking plugs	Champion N5. Long reach.
Plug gap	0·025 in.
Clutch	
Make	Borg and Beck.
Type	Single dry plate.
Diameter	6¼ ins.
Method of operation	Hydraulic.
Gearbox	
Type	4-speed synchromesh (on 2nd, 3rd and top).
Gear ratios: 1st	3·628.
2nd	2·374.
3rd	1·412.
top	1·0.
reverse	4·664.
Oil capacity	2⅓ Imp. pints (2·80 U.S. pints).
Propeller Shaft	
Make	Hardy Spicer.
Type	Open shaft.
Rear Axle	
Type	Hypoid three-quarter floating.
Oil capacity	1¾ Imp. pints (2·1 U.S. pints).
Overall ratios: 1st	15·31.
2nd	10·02.
3rd	5·96.
top	4·22.
reverse	19·68.
Steering	
Type	Rack and pinion.
Ratio	2⅓ turns lock to lock.

Track toe-in	$\frac{1}{16}$–$\frac{1}{8}$ in.
Adjustment	Shims.

Suspension

Front: Type	Independent by coil springs and wishbones.
Castor angle	3°.
Camber angle	1°.
Swivel-pin inclination	6½°.
Rear: Type	Quarter-elliptic leaf springs.

Shock Absorbers

Make	Armstrong.
Type	Double-acting hydraulic piston.

Brakes

Make	Lockheed.
Type	Hydraulic two leading shoes on front.
Handbrake	Pull-up operating mechanically on rear wheels.
Drum diameter	7 ins.

Wheels

Type	13 × 3·50 pressed steel disc with ventilation holes.

Tyres

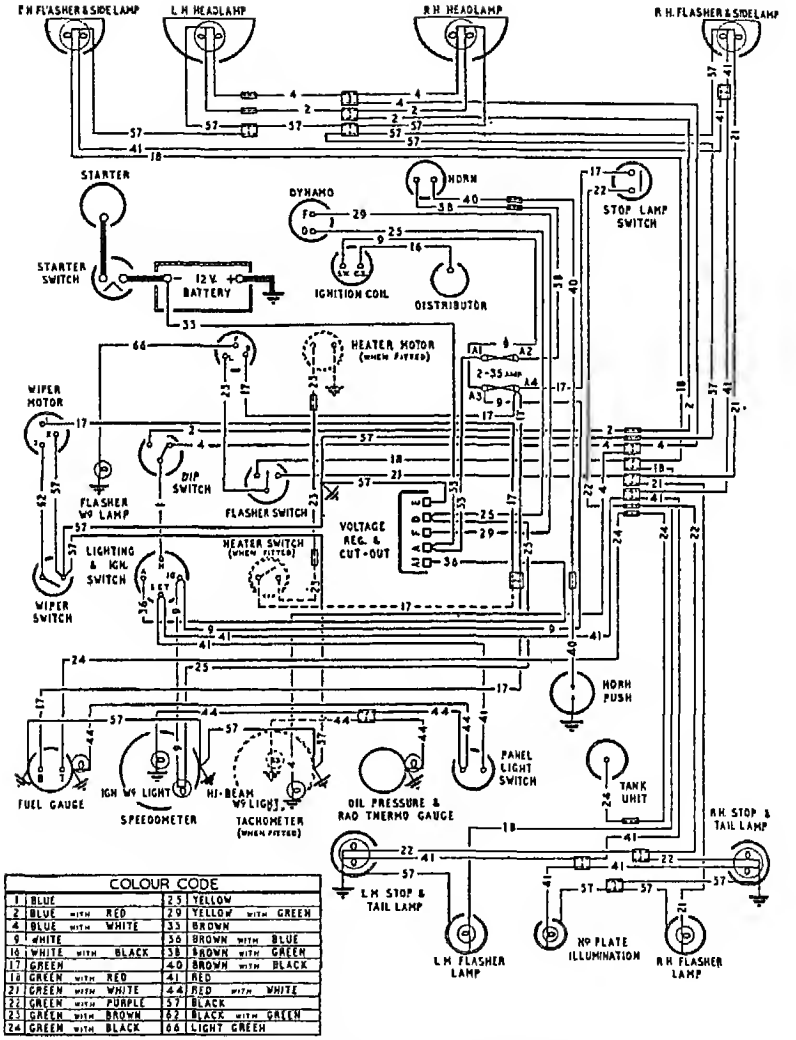
Type	Dunlop 5·20×13 E.L.P. Tubeless
Pressures	18 lbs./sq. in. front. 20 lbs./sq. in. rear.

Jacking System

Type	Smith's 'Steady-lift'.
Operation	Ratchet spanner.

Electrical Equipment

Type	Lucas 12-volt.
Battery	Lucas B.T.W. 7A.
Capacity	43 amp. hrs. at 20-hr. rate.
Coil	Lucas type LA 12.



COLOUR CODE			
1	BLUE	25	YELLOW
2	BLUE with RED	29	YELLOW with GREEN
4	BLUE with WHITE	33	BROWN
9	WHITE	36	BROWN with BLUE
10	WHITE with BLACK	38	BROWN with GREEN
17	GREEN	40	BROWN with BLACK
18	GREEN with RED	41	RED
21	GREEN with WHITE	44	RED with WHITE
22	GREEN with PURPLE	57	BLACK
23	GREEN with BROWN	62	BLACK with GREEN
24	GREEN with BLACK	66	LIGHT GREEN

Wiring Diagram of the Austin-Healey Sprite

Technical Specifications

Dynamo	Lucas type C39PV2.
Starter motor	Lucas type M35G.
Cut-out and regulator	Lucas type RB106.
Fuse unit	Lucas type SF6.
Horn	Lucas type HF 1849.
Windscreen wipers	Lucas DR2.

General Dimensions

Overall length	11 ft. 0⅝ in.
Overall width	4 ft. 5 ins.
Overall height	4 ft. 1¾ ins.
Wheelbase	6 ft. 8 ins.
Track (front)	3 ft. 9¾ ins.
Track (rear)	3 ft. 8¾ ins.
Turning circle	32 ft. approx.
Approximate weight	1,330 lbs.

Engine Number: Located on right-hand side of cylinder block, adjacent to cylinder head.

Car Number: Located on plate attached to left-side door pillar.

Austin-Healey '3000', Series BN7

Engine

Number of cylinders	6.
Bore	3·282 in. (83·36 mm.).
Stroke	3·5 in. (89 mm.).
Capacity	177·7 cu. ins. (2,912 c.c.).
Brake horse power	124 at 4,600 r.p.m.
Maximum torque	175 lbs. ft. at 3,000 r.p.m.
Compression ratio	9·03 to 1.
Valves	Overhead, pushrod operation.
Firing order	1, 5, 3, 6, 2, 4.
Valve clearance (hot)	0·012 in.
Sparking plugs	Champion N5.
Sparking-plug gap	0·025 in.
Ignition timing	5° B.T.D.C.
Contact-breaker gap	0·014–0·016 in.

Lubrication

Type	Wet sump.
Filter	Full flow.
Sump capacity (including filter)	11½ Imp. pints (13·8 U.S. pints).
Oil pressure: normal	50 lbs./sq. in.
idling	20 lbs./sq. in.

Fuel System

Pump	S.U. Electric.
Carburettors	Twin S.U., type HD6.
Carburettor needle	CV.
Tank capacity	12 Imp. gals. (14·4 U.S. gals.).
Air cleaners	Twin 'pancake'.

Cooling System

Type	Pressurized.
Circulation	Pump, fan and thermostat.
Capacity	20 Imp. pints (24 U.S. pints).

Ignition System

Type	Lucas 12-volt.

Clutch

Type	Borg and Beck single dry plate.
Diameter	10 ins.
Operation	Hydraulic.

Transmission (with overdrive)

Gearbox type: 4-speed, synchromesh on 2nd, 3rd and top.

Overall gear ratios:		*Normal*	*With Overdrive*		
With Synchro.	First	10·386	11·453		
	Second	7·877	8·025		
	Third	4·640	5·116	4·195	Overdrive
	Fourth	3·545	3·909	3·205	Overdrive
	Reverse	13·400	14·776		

Oil capacity	5 Imp. pints (6 U.S. pints).
Propeller shaft	Hardy Spicer open shaft.
Rear axle: ratio	3·91.
oil capacity	3 Imp. pints (3·6 U.S. pints).

Technical Specifications

Road speeds at 1,000 r.p.m.:	
1st	6·475 m.p.h.
2nd	9·24 m.p.h.
3rd	14·47 m.p.h.
Overdrive 3rd	17·65 m.p.h.
Top	18·94 m.p.h.
Overdrive top	23·1 m.p.h.
Overdrive oil capacity	1⅔ Imp. pints (1¾ U.S. pints).

Steering

Type	Cam and peg.
Ratio	14 to 1.

Suspension

Front: Type	Independent by coil springs and wishbones, with stabilizing bar.
Rear: Type	Semi-elliptic underslung leaf springs with Panhard rod.
Shock absorbers	Hydraulic lever type.

Brakes

Type	Girling hydraulic.
Front	Disc, 11¼ ins. diameter.
Rear	Drum, 11 ins. diameter.

Wheels

Type	15 in. × 4J ventilated steel disc.
Fixing	5 nuts.
Tyres	5·90 × 15 Roadspeed.
Tyre pressures: front, rear } two up	20 lbs./sq. in. 23 lbs./sq. in.
rear (full load)	26 lbs./sq. in.

Chassis

Type	Chassis integral with cross-braced box section frame.

Dimensions

Wheelbase	7 ft. 8 ins.
Overall length	13 ft. 1½ ins.
Overall height (hood raised)	4 ft. 2 ins.

Overall height (hood lowered)	3ft. 10 ins.
Overall width	5 ft. 0½ in.
Height over scuttle	2 ft. 11⅞ ins.
Ground clearance	4½ ins.
Track, front	4 ft. 0¾ in.
Track, rear	4 ft. 2 ins.
Turning circle	35 ft.
Approx. weights:	
With overdrive and wire wheels, 2-seater	2,408 lbs.
With overdrive and wire wheels, 4-seater	2,393 lbs.

Performance Data

Austin-Healey Sprite

Acceleration: 0–30 m.p.h.: 5·3 secs.
0–50 m.p.h.: 13·7 secs.

Maximum Speeds: Top gear: 81 m.p.h.
3rd gear: 63 m.p.h.

Fuel Consumption: Fast touring: 34 m.p.g.
At 40 m.p.h.: 54 m.p.g.
At 30 m.p.h.: 54 m.p.g.
} U.K. gal.

Austin-Healey '3000'

Acceleration: 0–30 m.p.h.: 3·5 secs.
0–50 m.p.h.: 8·0 secs.

Maximum Speeds:

Top gear:	110 m.p.h.
Top gear (with overdrive):	116 m.p.h.
3rd gear:	78 m.p.h.
3rd gear (with overdrive):	98 m.p.h.

Fuel Consumption: Fast touring: 20·0 m.p.g. (U.K. gal.).

Figures quoted from independent road test reports by *The Autocar.*

7. Maintenance and Servicing

Although general repairs and overhauls of the Austin-Healey are best left to the *marque*'s agents, who have all the know-how and all the right tools to do the job quickly and efficiently, many enthusiastic owners are keen to do their own routine servicing and maintenance and, indeed, through long owner-driver experience, are qualified to do so. The ordinary day-to-day servicing of the Austin-Healey '100-Six' and the Sprite is dealt with in detail in the owner's handbook supplied with each car. In fact, apart from such things as the location of the various servicing points, there is little difference between doing this work on the Austin-Healey and doing it on other modern cars, while to repeat the instruction here would take up more space than is available.

On the other hand, there are the slightly more advanced servicing jobs, such as altering the ignition timing, adjusting valve clearances and setting the carburettors, which the enthusiastic owner with a little know-how can do quite easily. It is this work, halfway between the owner's handbook and the workshop manual, so to speak, which is dealt with in the following pages.

Austin-Healey '100-Six'

Ignition Testing and Timing

If the ignition system fails, or misfiring occurs, first make sure that the trouble is not due to defects in the engine, carburettor or fuel supply. When it is certain that the defect is electrical, begin by checking the battery. Make sure it is in good condition, that the terminals are clean and tight, that it is filled with electrolyte (distilled water) to

the correct level, so that the separators are just covered, and that it is fully charged.

Examine the high-tension cables, i.e. the cables from the coil to the distributor, and from the distributor to the plugs. If the rubber insulation shows signs of deterioration or cracking, the cable must be replaced. Patching up should be only a temporary measure and is not satisfactory.

Test the plugs and high-tension cables by removing the plugs in turn and allowing them to rest on the cylinder head or other convenient earthing point, and observing whether a spark occurs at the points when the engine is turned by hand. However, this is only a rough test; it is possible that a spark may not take place when the plug is not under compression. If necessary, clean all carbon deposit from the electrodes and plug threads with a stiff brush dipped in paraffin, or, better still, an air-blast cleaning unit. Check the plug gaps with a gauge and reset, if necessary, to the recommended clearance of 0·025 in. Be certain that the plugs are of the recommended type—Champion N5 Long Reach.

When refitting the plugs, make sure the copper washers are not defective in any way. If they have become worn and flattened, fit new ones to make sure of obtaining a gas-tight joint. The plugs should be wiped frequently with a clean rag, as accumulations of oil and dust on the insulators are often responsible for poor performance.

Remove the distributor cover and rotor arm, and examine the contacts. These should be free from grease or oil. If they are burned or blackened, clean them with a very fine carborundum stone or emery-cloth. Afterwards wipe away all traces of dirt or metal dust with a petrol-moistened cloth. If the contacts are badly burned, they should be renewed. These must always be replaced in pairs.

To adjust the contact-breaker points, turn the engine with the starting handle until the points are fully open (when the fibre heel of the rocker is on the peak of one of the cam lobes). Slacken the fixed contact-plate securing screws, and move the plate until the gap feeler gauge is a sliding fit between the contacts (0·014–0·016 in.); then fully tighten the securing screws. Finally re-check the gap and replace the rotor arm. Before replacing the distributor cover, wipe it inside and outside with a soft dry cloth, paying particular attention to the spaces between the terminals. Make sure that the small carbon brush inside the cover works freely, is in contact with the rotor and

not unduly worn, and that the terminals are secure. In addition, lubricate the distributor spindle lightly with a few drops of thin oil. This will ensure the free operation of the automatic timing control (advance and retard), which is operated by centrifugal force together with a vacuum timing control operated by the depression in the engine induction manifold. Smear a little light grease on the distributor cam, and make certain the cover is replaced to seat properly with both spring clips in position.

To adjust the ignition timing, if the distributor has been disturbed remove the valve rocker cover, having first released the securing cap nuts, so that the valve action can be observed. Rotate the engine with the starting handle until No. 1 piston is at the top of its compression stroke (i.e. the exhaust valve of No. 6 cylinder is just closing and the inlet valve just opening). Turn the crankshaft until the recess in the crankshaft pulley flange is in line with the pointer on the timing-chain cover. If the timing-chain cover has been removed, align the bright links on the timing chain with the marked teeth on the camshaft and crankshaft sprockets. Nos. 6 and 1 pistons will now be at T.D.C. (Top Dead Centre). Set the micrometer adjustment on the distributor to its central position. The crankshaft should now be rotated backwards 6 degrees to obtain its correct position before setting the distributor points, assuming that premium grade fuels are being used. With the cover removed, the distributor body must now be rotated until the rotor arm is pointing to the position of No. 1 elec trode in the cover. With the contact points just opening, tighten the clamp-plate bolt. Replace the distributor cover and valve rocker cover.

Finer adjustment can be obtained on the road by means of the micrometer adjustment. This adjustment should not be used for initial setting of the ignition. It is only altered if the main setting requires additional adjustment to meet the characteristics of the grades of petrol being used. There is a considerable amount of latitude for adjustment, but only an extremely small movement of the adjustment knob should be made at one time.

If a faulty ignition system appears to be due to a fault in the low-tension circuit, it must be traced with the aid of a voltmeter. Release the ignition panel from the dash, switch on the ignition and turn the engine until the distributor contacts are open. Refer to the wiring diagram on page 83, and check the circuit as follows:

1. *Cable—Battery to starter switch.* Connect the voltmeter between the supply terminal of the starter switch and an earthing point. No reading indicates a faulty cable or loose connection.

2. *Cable (brown)—Starter switch to two-way fuse unit A.1 terminal.* Connect the voltmeter between the fuse unit A.1 terminal and earth. No reading indicates a faulty cable or loose connection.

3. *Control box.* Connect the voltmeter between the control box terminal (A.1) and earth. No reading indicates a faulty control box.

4. *Cable (brown and blue)—Control box to lighting and ignition switch.* Connect the voltmeter between the lighting switch terminal (A) and earth. No reading indicates a faulty cable or loose connection.

5. *Ignition switch.* Connect the voltmeter between the ignition switch (white cable terminal) and earth. No reading indicates a faulty ignition switch.

6. *Cable (white)—Ignition switch to fuse unit A.3 terminal.* Connect the voltmeter between the fuse unit A.3 terminal and earth. No reading indicates a faulty cable or loose connection.

7. *Cable (white)—Fuse unit A.3 terminal to ignition coil.* Connect the voltmeter between the ignition coil terminal (SW) and earth. No reading indicates a faulty cable or loose connection.

8. *Ignition coil.* Connect the voltmeter between the ignition coil terminal (CB) and earth. No reading indicates a faulty ignition coil.

9. *Cable (white and black)—Ignition coil to distributor.* Connect the voltmeter between the distributor terminal and earth. No reading indicates a faulty cable or loose connection.

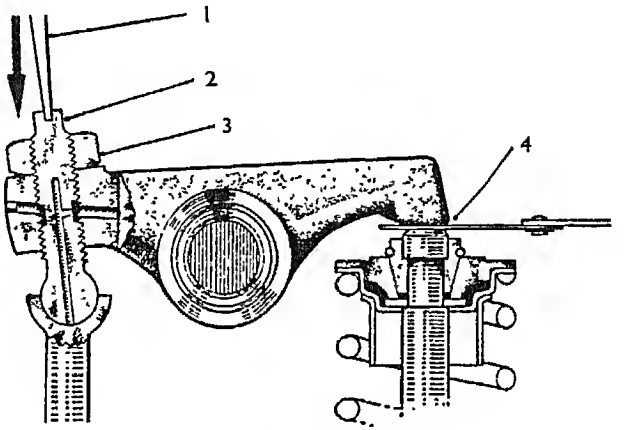
10. *Distributor.* Connect the voltmeter across the distributor contacts. If no reading is given, remove the capacitor and test again. If a reading is given, the capacitor is faulty.

If, after carrying out all the foregoing tests, the fault has still not been located, remove the high-tension cable from the centre terminal of the distributor. Switch on the ignition and crank the engine until the contacts close. Flick the contact-breaker lever open while the high-tension cable from the ignition coil is held about $\frac{3}{16}$ in. away from the cylinder block. If the ignition system is in order a strong spark should be obtained. If no spark is given, it indicates a faulty ignition coil. This cannot be repaired, only replaced with a new one.

Adjusting Valve Clearance

Lift off the valve rocker cover after removing the holding nuts. Between the rocker arm and the valve stem there must be a clearance of 0·012 in. for both inlet and exhaust valves. The clearance is set with the engine HOT. If valve clearance adjustment is necessary:

1. Slacken the adjusting screw locknut whilst continuously applying sufficient pressure to the adjusting screw with a heavy screwdriver,



Adjusting Valve Clearance

1. Screwdriver
2. Adjusting screw
3. Locknut
4. Feeler gauge

and raise or lower the adjusting screw in the rocker arm. Check the clearance between the valve stem and rocker arm with a 0·012-in. feeler gauge.

2. Tighten the locknut when the adjustment is correct, but always check it again afterwards in case the adjustment has been disturbed during the locking process.

3. When replacing the valve cover, take care that the joint washer is properly in place to ensure an oil-tight joint. Use a new joint washer if there is any doubt about its condition.

Carburettor Adjustment

The carburettors fitted to the Austin-Healey '100-Six' engine are two S.U. type H4. On the 1958 six-port cylinder-head model, these are replaced with two S.U. type HD6. Provided that regular servicing is carried out at the recommended mileage, the carburettors will give efficient and trouble-free service. They are carefully balanced to ensure perfect running of the engine, and it is therefore important that only qualified people should be allowed to attend to any major faults. Should the engine run erratically, having previously given good results, look for a minor fault rather than a major one.

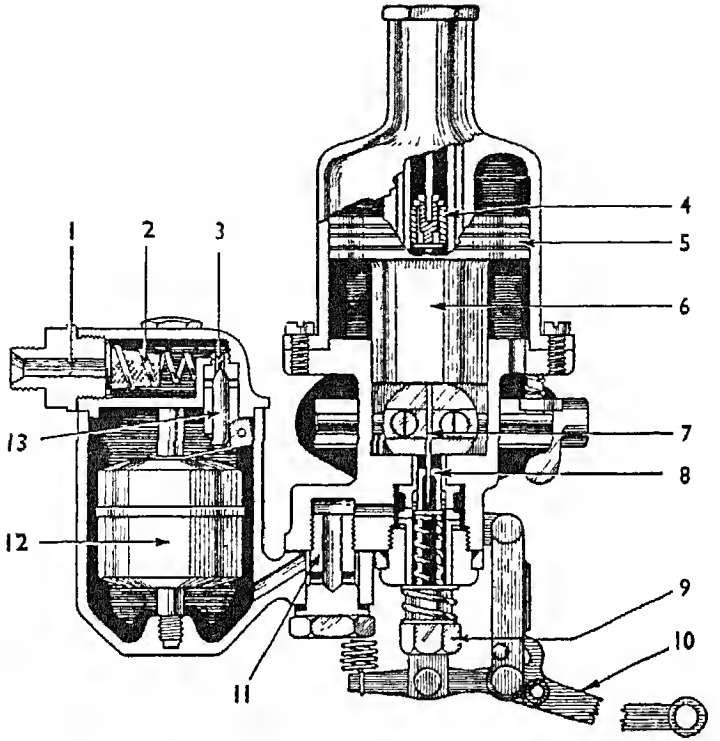
In the event of poor running, first make sure that the pistons are able to move freely. If they are not, the causes may be as follows:

1. Dirt in the suction chambers. Cure: remove the securing screws and lift off each body carefully to avoid damaging the needle. Lift out the hydraulic damper and wash the assembly in petrol. Dry thoroughly, refit and replenish the damper with oil. When fully reassembled, lift the piston to its fullest extent, expelling surplus oil, which lubricates the piston rod and eventually finds its way into the induction pipe. This is the only part which requires lubrication; the piston itself and the inside of the suction chamber should be left dry.

2. A bent hydraulic damper spoke. Cure: straighten or replace.

3. A bent jet needle. Cure: replace. Straightening is not recommended except in an emergency.

4. An incorrectly centred jet. Cure: re-centre in the following manner. Remove the air cleaner, and disconnect the choke lever from the jet head. Extract the hydraulic damper by unscrewing the cap on top of the suction chamber. Screw up the jet-adjusting nut to its highest position, slacken the jet holding screw and gently tap the jet head until the piston falls freely, striking the bridge with an audible click. Re-tighten the jet holding screw. If the first effort is not successful, repeat the process. Finally, screw the jet-adjusting nut to its original position. Centring the jet of the type HD carburettor is carried out in much the same way as the type H4, except that the float chambers must be removed and the jet held in the uppermost position by hand, the jet-adjusting screw (18) having been first undone sufficiently to allow the jet cup (4) to make contact with the jet bearing (2), with a distinct clearance between the jet-adjusting



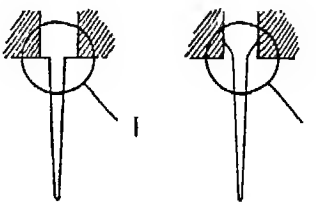
Sectional View of the Austin-Healey '100-Six' Carburettor—H4

1. Banjo union
2. Strainer and spring
3. Valve opening
4. Hydraulic damper
5. Suction disc
6. Piston
7. Needle
8. Main jet
9. Jet-adjusting nut
10. Choke lever
11. Float-chamber bolt
12. Float
13. Needle valve

The Two Forms of Tapered Needle

1. Square shoulder
2. Tapered shoulder

Although the needle with tapered shoulder is not now manufactured, where stocks are supplied it may still be used.



screw (18) and its abutment. It is important to keep the diaphragm, and therefore the jet, in the same radial position, in relation to the carburettor body and jet casing, throughout this operation, as the jet orifice is not necessarily concentric with its outside diameter, and turning might cause decentralization. The simplest way to do this is to mark one of the diaphragm and corresponding jet casing screw holes with a soft pencil.

Adjustment—Type H4

Before starting any mixture or slow-running adjustments, run the engine until it has reached its normal running temperature. The slow-running is governed by the setting of the jet-adjusting screws and the throttle stop screws, all of which must be correctly set and synchronized if satisfactory results are to be obtained. The two carburettor throttles are interconnected by a coupling shaft and spring coupling clips, which enable them to be correctly synchronized when adjustments take place.

Before blaming the carburettor settings for bad slow-running, make quite sure it is not due to badly set contact points, faulty plugs, bad valve clearance setting or faulty valves and valve springs.

Good slow-running cannot be obtained if the setting for the jets is incorrect. It is therefore advisable to begin any adjustments at this point. In order to adjust the carburettors successfully, it is necessary to remove the air cleaners and intake-pipe assembly from the carburettors and engine valve cover and make sure the pistons work freely, and that the jets are properly centred (see above).

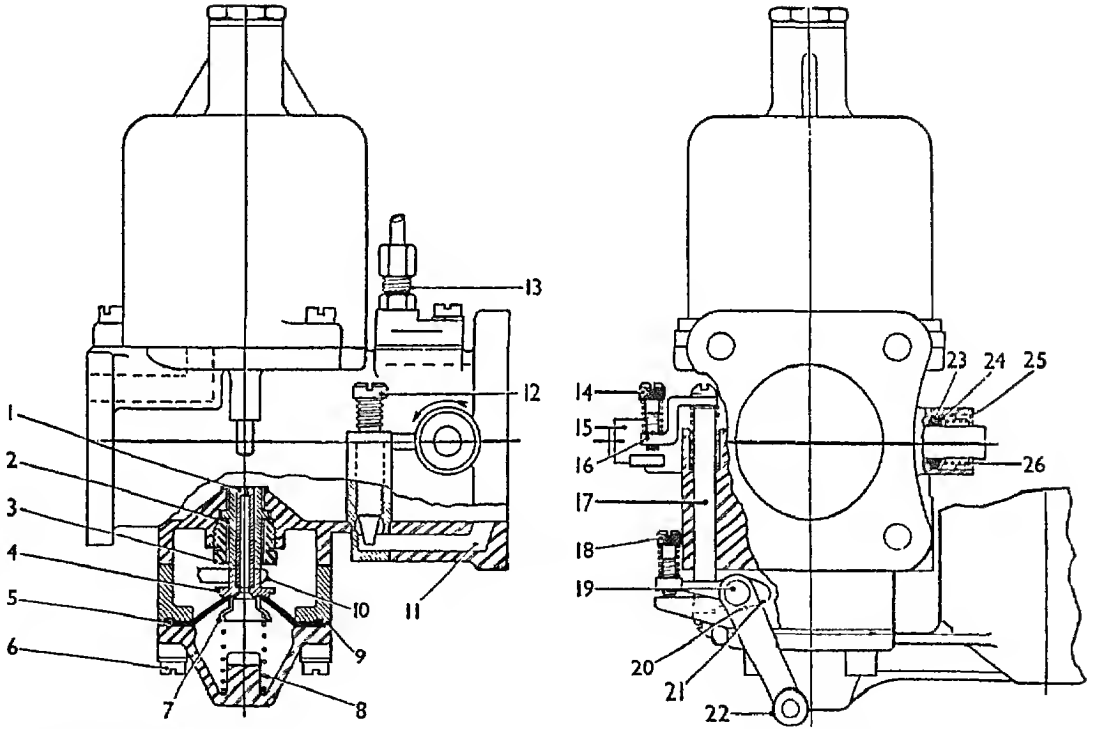
Procedure for Adjusting the Jets.

1. Slacken off the pinch-bolt of one of the spring coupling clips locating the carburettor interconnecting shaft to the carburettor throttle spindles, and release the two screws securing the choke spring to the jet levers, so that each carburettor can be operated independently.

2. Unscrew the throttle-lever adjusting screws until both throttles are completely closed.

3. Turn the throttle-lever adjusting screw for the rear carburettor clockwise until it is just touching the web on the carburettor body and then give it one full turn. This will set the rear carburettor for fast idling and leave the front one out of action. This can be ensured further by lifting the front carburettor piston a matter of $\frac{1}{2}$ in.

A Sectional View of the Austin-Healey '100-Six' Carburettor—HD6



1. Jet
2. Jet bearing
3. Jet screw
4. Jet cup
5. Diaphragm
6. Float-chamber securing screw
7. Jet return-spring cup
8. Jet return spring
9. Diaphragm casing
0. Jet-actuating lever
1. Slow-run passage
2. Slow-run screw
3. Vacuum advance union
4. Throttle-adjusting screw
5. Throttle stop lever
6. Top plate
7. Pushrod
18. Jet-adjusting screw
19. Jet-lever spindle
20. Cam shoe
21. Cam
22. Jet hand-control lever
23. Cork gland
24. Dished washer
25. Shroud
26. Spring

4. With the engine running, set the jet-adjusting screw for the rear carburettor so that a mixture strength is obtained which will give the best running speed for this throttle opening, taking care to see that the jet head is kept in firm contact with the adjusting nut the whole time.

5. The correctness of this setting can be checked by raising the suction piston with a small screwdriver to the extent of $\frac{1}{32}$ in. This should cause a very slight momentary increase in the engine speed without impairing the evenness of the running in any way. But if the engine stops, then the mixture setting is too weak. If an appreciable increase of speed occurs, and continues to occur when the piston is raised as much as $\frac{1}{4}$ in., then the mixture is too rich.

6. When the rear carburettor mixture setting has been carried out correctly, release its throttle-adjusting screw so that it is clear of the stop and the throttle completely closed, and lift the piston $\frac{1}{2}$ in. to render it inoperative. Then repeat the jet-adjusting operations on the front carburettor.

7. When both carburettors are correctly adjusted individually for mixture strength, the throttles of each should be set so as to give the required slow-running and synchronization.

Slow-running and Synchronization. Screw each throttle-lever adjusting screw so that its end is only just making contact with the web on the carburettor body, then give each screw exactly one full turn. Start the engine, which will now idle on the fast side. Next, unscrew each throttle-lever adjusting screw an equal amount, a fraction of a turn at a time, until the desired slow-running speed is achieved.

Correct synchronization can be checked by listening at each carburettor air intake in turn through a length of rubber tube and noticing if the hiss produced by the incoming air is the same at both. Any variation in the intensity of sound indicates that one throttle is set more widely open than the other. The louder sound indicates the throttle with the greater opening. When the same intensity of sound is given by both carburettors, the intercoupling shaft clip should be tightened up firmly to ensure that the throttles work together.

Since the delivery characteristics, when both carburettors are operating together, vary somewhat from those existing when each is working separately, it will be found necessary to check them again for correctness of mixture strength by lifting the pistons in turn as de-

scribed in 'Procedure for Adjusting the Jets', making such adjustments of the jet-adjusting screws as are required to balance the mixture strength and to ensure that it is not too rich.

Adjustment—Type HD6

The adjustment of the HD6 carburettor is extremely simple. Whereas with the older type the jet was controlled by a nut, it is now set by a screw (18), and whereas the engine speed was determined by adjustment of the throttle, it is now controlled by the 'slow-run' valve (12). To enrich the mixture, the screw (18) should be screwed in, and to increase the idling speed, the 'slow-run' (12) should be undone.

Procedure for Adjusting the Jets. The adjustment procedure is as follows:

1. Run the engine until its normal operating temperature is reached.
2. Disconnect the interconnecting rod between the jet-actuating levers.
3. The throttle-stop screws on each carburettor must be undone so that they are clear of the stops. This ensures that the throttles are fully closed.
4. Screw the slow-running valve screw right down on each carburettor, and then unscrew them 1½ turns.
5. If the engine runs too fast when this has been done, screw in both slow-running screws a little at a time until even idling is achieved.
6. Set the mixture strength by means of the jet-lever adjusting screws.
7. Check the correctness of this setting using a small screwdriver, as described in 'Jet Adjustment Procedure, Type H4', No. 5.
8. The interconnecting rod should now be refitted, taking care not to alter the positions of the jet-actuating levers. It may be necessary to adjust its length.
9. With the foregoing adjustments complete, it is only necessary to reset the amount of automatic throttle opening which should occur when the choke is operated. Do this by screwing down the throttle stop screw on each carburettor an equal amount until a fast idle is obtained with approximately half choke. This will give the necessary cold-start throttle opening. After this is done, ensure that when the choke is fully released the throttles are closed.

Since the jet of the HD6 carburettor is fed through its centre and has no glands, leakage can be caused only by an insecure fit of the jet cup, an imperfect seal of the diaphragm, either at its outer edge, where it is compressed between the float-chamber and the diaphragm casing, or at its inner edge, where it is fitted to the jet, or by fracture of the diaphragm. Leakage at the outer edge may be cured by tightening the float-chamber securing screws (6), but fracture or leaking at the inner edge will probably call for a new jet assembly.

The jet may also stick, either up or down, due to dirt between it and its bearing (2), or due to corrosion. The cure is to remove the parts by undoing the jet screw (3), clean and refit.

The Braking System

The Girling hydraulic braking system of the Austin-Healey '100-Six' employs two leading-shoe brakes at the front, with a dual-purpose expander unit on the rear brake shoes, enabling them to be operated hydraulically or mechanically. The handbrake is mounted between the seats and operates the mechanical linkage to the rear brakes, while the pedal operates hydraulically on all four wheels.

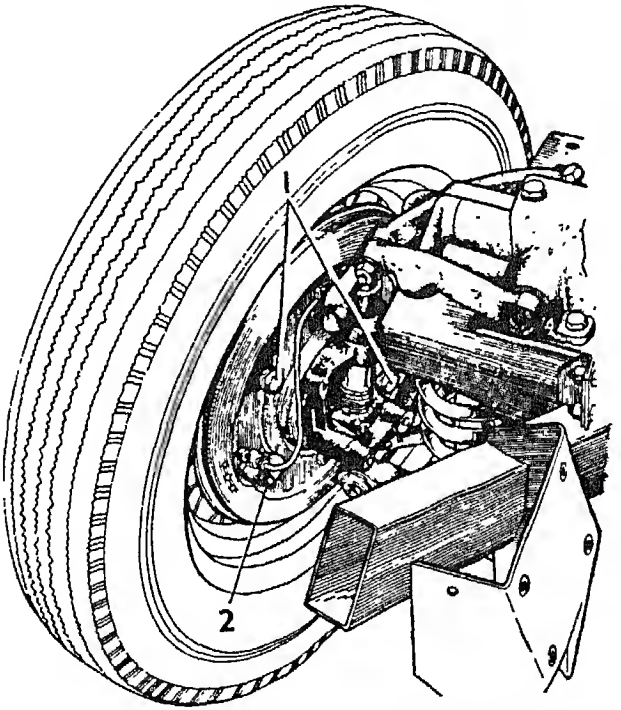
Adjustment. The adjustment for taking up wear in the brake-shoe linings is effected at each brake back plate; the brake rods and linkage system should in no circumstances be altered. No attempt should be made to adjust the brakes with the handbrake on.

Front Brakes. Firmly chock one of the wheels and then jack the vehicle until the front wheel to be adjusted is clear of the ground. Fully release both the hexagonal-headed adjuster bolts on the brake backing plate by turning them in an anti-clockwise direction. Then turn one of the adjuster bolts in a clockwise direction until the brake shoe concerned rubs against the drum. Release the adjuster one notch, or until the brake shoe is just free of the drum and then repeat the procedure for the second adjuster, a separate adjuster being provided for each shoe. Repeat the adjustment for the other front wheel. The adjusters operate snail-type cams which bear against the shoes. These cams are notched in order to hold them in position, and thus require no locking device.

Rear Brakes. Adjustment is made by turning the square-ended adjuster on each rear-brake backing plate in a clockwise direction as far as it will go. The brake shoes are then hard on, and the adjuster

should be turned back two full notches to give the shoes the correct clearance from the drum.

The adjuster can be turned a notch at a time, and the engagement, which can be heard and felt, is caused by the flat sides of the cone on the inner end of the adjuster engaging with the plungers supporting the ends of the shoes.



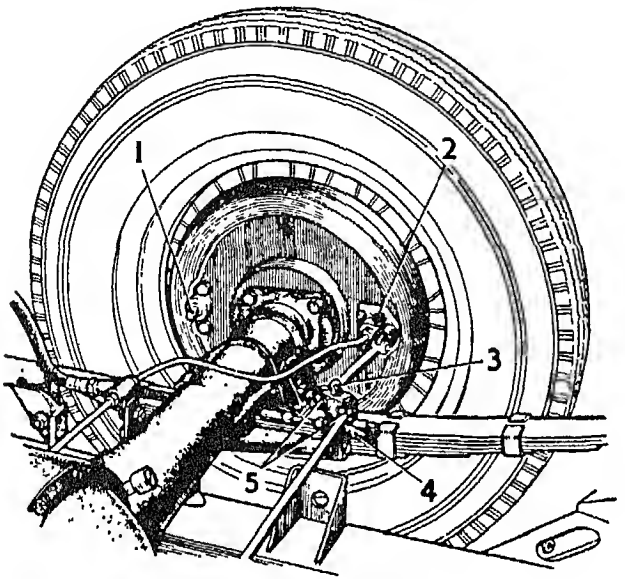
The Front Brake Back Plate, showing (1) the two brake-shoe adjusters and (2) the brake bleed nipple

One common adjuster is provided for both shoes in the rear-brake assembly, and the adjustment for both rear wheels is identical. After adjustment, the brake pedal should be applied hard two or three times to centralize the brake shoes in their drums.

Bleeding the Brakes. If any part of the hydraulic system has been disconnected it will be necessary to bleed the system when the connections have been reassembled, to ensure that the hydraulic fluid is free of air bubbles.

There is one bleed nipple on the brake back-plate assembly at each wheel.

Connect a rubber drain tube to one of the brake bleed nipples and immerse the open end of the tube in a jar partly filled with brake fluid. Then fit a spanner on the hexagonal sides of the bleed nipple and unscrew the nipple one full turn. The brake pedal should now be applied



A Rear Brake Back Plate

1. Brake adjuster
2. Bleed nipple
3. Balance-lever lubricator
4. Brake-rod oiling point
5. Transverse-rod oiling points

repeatedly with slow, full strokes until the fluid entering the jar from the drain tube is completely free of air bubbles. The bleed nipple should now be tightened with the spanner during a down stroke of the brake pedal. Repeat the whole operation on the other wheels.

It is important when bleeding the brakes to check the fluid level in the supply tank at frequent intervals and to top up as necessary to ensure that the master cylinder is never starved of fluid. Should air reach the master cylinder from the supply tank, it will be necessary to bleed the whole of the system again.

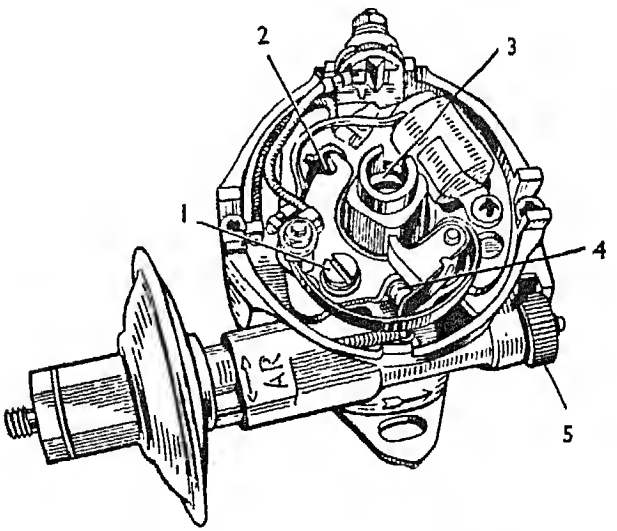
Fluid which has just been bled from the system should never be used for topping-up the supply tank immediately, since it will contain air to some extent. It must therefore be allowed to stand for an hour or two before it can be safely used again. Dirty fluid must be discarded, since grit or other foreign matter in the system will seriously affect braking efficiency, and cause unnecessary wear.

Note: It is advisable to turn all the brake-shoe adjusters to their full 'off' position before bleeding. After bleeding adjust brakes as described above.

Austin-Healey Sprite

Ignition Testing and Timing

In general, the ignition testing and servicing procedure for the Austin-Healey Sprite is similar to that of the '100-Six'. To gain access to the Lucas DM2 type distributor, remove the distributor cover and rotor arm. Next, unscrew the nut on the terminal post, lift



The Distributor of the Austin-Healey Sprite

1. Contact adjusting screw
2. Contact adjusting slot
3. Cam and drive shaft oiling point
4. Contact points
5. Micrometer adjuster

off the spring and remove the contact adjusting screw, after which both contacts may be removed. When refitting the contacts after cleaning or renewal, take care that the fibre insulating washer is replaced in its correct position. To adjust the contact-breaker points, turn the engine with the starting handle until the contacts are fully open. Slacken the fixed contact-plate securing screw and, with a feeler gauge, adjust the gap between the points to 0·014–0·016 in.

The sparking plugs fitted to the Sprite are Champion N5 Long Reach. The clearance between the electrodes should be set at 0·025 in.

To adjust the ignition timing if the distributor has been disturbed, remove the valve rocker cover and rotate the engine with the starting handle until No. 1 piston is at the top of its compression stroke—with the exhaust valve of No. 4 cylinder just closing and the exhaust valve just opening. Turn the crankshaft until the recess in the crankshaft pulley flange is in line with the largest pointer (Top Dead Centre) on the timing-case cover. If the timing-case cover has been removed, align the timing marks on the camshaft and crankshaft wheels. Nos. 1 and 4 pistons are now at Top Dead Centre. Complete the operation as described in the section dealing with the '100-Six', except that the crankshaft should be rotated 5 degrees backwards before setting the distributor points.

Adjusting Valve Clearance

Proceed as for the Austin-Healey '100-Six'. Valve clearances should be checked every 6,000 miles and adjusted if necessary.

Carburettor Adjustment

The carburettors fitted to the Austin-Healey Sprite are two S.U. type H1. For details of servicing and jet adjustment, refer back to the section dealing with the type H4 carburettor of the Austin-Healey '100-Six', and proceed accordingly.

The Braking System

The Lockheed hydraulic braking system employs two leading-shoe brakes at the front, with a dual-purpose expander unit on the rear brake shoes, enabling them to be operated hydraulically or mechanically. A pull-up type handbrake operates directly on the mechanical

linkage to the rear wheels, whilst the footbrake operates on all four wheels hydraulically.

Adjustment. The brakes may require adjustment approximately every 1,000 miles to maintain them at maximum efficiency.

Front Brakes. Apply the handbrake, jack up one front wheel until it is free to revolve. Spin the wheel in a forward direction and apply the footbrake firmly to centralize the shoes in the drum. Remove the road-wheel cap and align the hole in the wheel and the brake drum with the screwdriver slot on one wheel cylinder. Insert a screwdriver and turn in a clockwise direction until the brake shoe bears hard against the drum. Back off the adjustment the least possible amount (usually two or three clicks) until the wheel is free to revolve. Repeat these operations at the other wheel cylinder. Replace the road wheel cap. Adjust the opposite front-wheel brakes in a similar manner.

Rear Brakes. Place chocks under the front wheels, release the handbrake and jack up one rear wheel until it is free to revolve. Remove the road-wheel cap and proceed as for the front brakes, but, as there is only one adjusting point for both shoes, the adjuster must be turned until one shoe bears against the drum, then continue turning until both shoes bear hard. Back off the adjustment the least possible amount until the wheel can be revolved (the amount of backing off may be slightly more than was needed for the front brakes). Replace the road-wheel cap. Adjust the opposite rear-wheel brakes in a similar manner.

Bleeding the Brakes. Proceed as for the Austin-Healey '100-Six'.

Tuning Instructions

The Austin-Healey Sprite as delivered from the factory in its standard form is tuned to give maximum performance with 90 octane petrol consistent with complete reliability and reasonable freedom from pinking. There is, however, a more or less continuous demand from enthusiasts all over the world for information on methods of improving the performance of the car for competitive purposes. It is to meet this demand that these tuning instructions have been prepared.

It must be clearly understood, however, that whereas it is a simple matter to increase the power output of the engine, this increase in power must inevitably carry with it a tendency to reduce reliability.

It is for this reason that the terms of the warranty of a new Sprite expressly exclude any super-tuning of the kind described here. But this does not mean that tuning in this way will necessarily make the car hopelessly unreliable. In fact, it may be assumed that it will be at least as reliable as other cars of similar performance.

These instructions give details for progressively increasing the power. With the above ideas firmly in mind, the owner should select the simplest tuning method which will give him the performance he requires, remembering all the time that here, as elsewhere, Power Costs Money.

Tuning Condition No. 1. By general attention to the cylinder head and port polishing, an increase of some 2 b.h.p. can be obtained.

Lightly grind and polish the exhaust and inlet ports throughout. They should not be ground out so heavily that the shape or valve choke diameters are impaired. Match up by grinding the exhaust manifold ports with the cylinder-head ports.

Grind out and polish the inlet manifold, matching the carburettor bore. Also make the bore of the manifold $1\frac{1}{8}$ ins. diameter at the cylinder-head face by grinding out right through to this diameter.

Do not grind out the combustion spaces, as these are already quite clean and partly machined, but remove any frazes and lightly polish all over. Any enlargement around the combustion walls may cause the cylinder-head gasket to overlap and destroy the efficiency of the seal. Also the compression ratio will be lowered and the tuning will be ineffective.

Tuning Condition No. 2. Carry out the procedure by port polishing as given in Tuning Condition No. 1. The compression ratio is then raised to 9·3 to 1 by fitting flat-top pistons (Part No. 2A946). Reset the ignition to 8° B.T.D.C. This tuning should give 47 b.h.p. at 5,500 r.p.m.

Tuning Condition No. 3. Carry out the Tuning Conditions 1 and 2. Further improvement can be obtained by fitting the following special items:

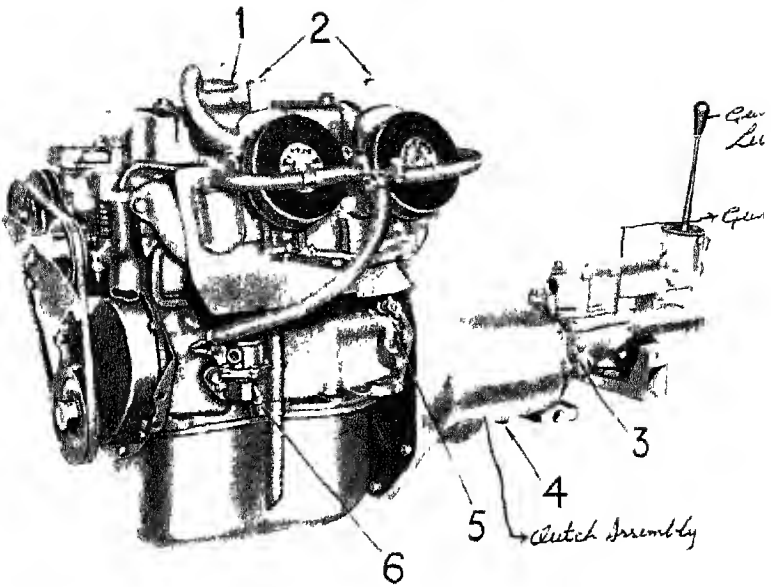
Valve springs	Part No. 2A.950
Camshaft (must be used with above springs)	,, ,, 2A.948

With this camshaft the timing will be:

Inlet: opens 16° B.T.D.C., closes 56° A.B.D.C.

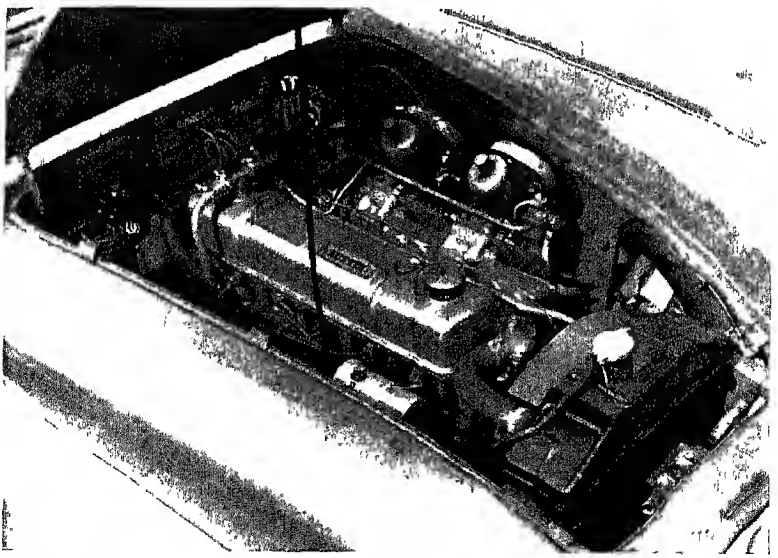
Exhaust: opens 51° B.B.D.C., closes 21° A.T.D.C.

Valve lift: $\frac{5}{16}$ in. (7·94 mm.)

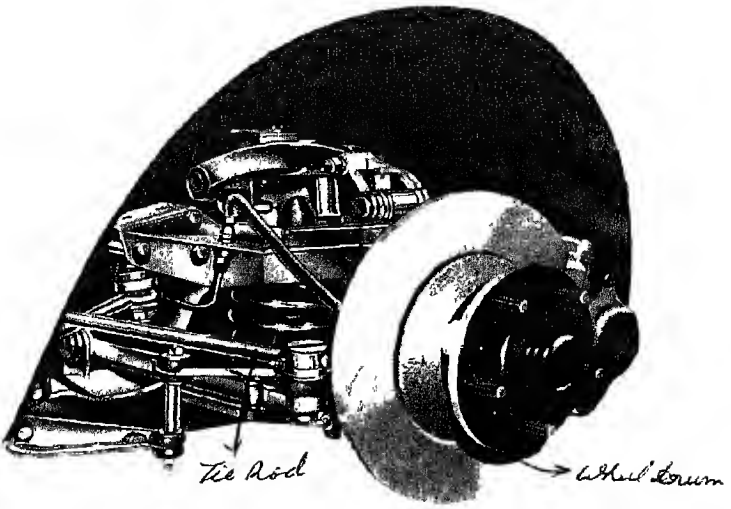


The power unit of the Sprite engine (left hand side view)

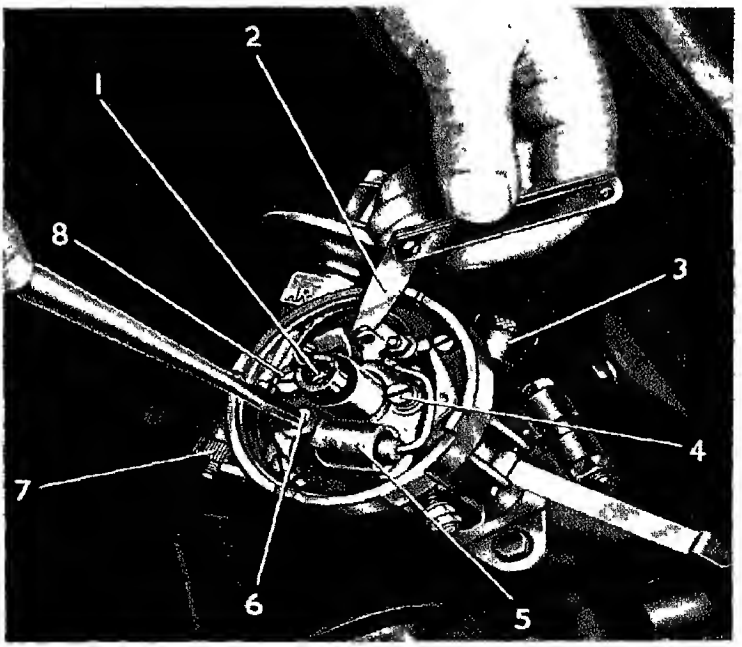
1 Oil filler cap
2 Carburettor hydraulic damper reservoirs
3 Gearbox oil filler plug
4 Gearbox drain plug
5 Cylinder block drain cock
6 Fuel pump priming lever



The latest Austin Healey, the '3000', has the B.M.C. 'C' type power unit which produces 124 b.h.p. at 4,600 r.p.m. The new bore and stroke dimensions (83.36 mm. by 89 mm.) give a capacity of 2,912 c.c.



The Girling disc brakes fitted to the front wheels of the Austin-Healey '3000' are the result of years of research and experience. They have a 11¼-in. diameter disc and twin calliper cylinders compressing the friction pads situated one on either side of the disc



Contact breaker adjustment

1. Oiling point
2. Feeler gauge
3. Shaft lubricator
4. Contact locking screws
5. Condenser
6. Contact adjusting screw
7. Micrometer adjuster
8. Contact locking screws

Distributor (for use with above camshaft) Part No. 2A.951
Carburettor needle GG with air cleaners
GM with air cleaners removed

Set ignition to 1° B.T.D.C. Use 93/97 octane premium fuel.

The combined tuning conditions 1, 2 and 3 will give an increase of b.h.p. up to 50, and the r.p.m. range will be increased to 5,800.

Tuning Condition No. 4. After carrying out the Tuning Conditions 2 and 3, a further increase of approximately 2 b.h.p. may be obtained by alteration of the shape of the inlet port. Grind out and enlarge the inlet port at the neck.

Make up a sheet-metal template to the dimensions given at A in the diagram on p. 112 and fasten it to a long bolt so that it may be used as a gauge when grinding out the inlet ports. Be very careful to grind the inlet-port throat central between the pushrod holes, as the wall left is only 0·086 in. thick. Ease off the port by grinding at the valve-guide boss and the opposite port wall bend as depicted at B.

Enlarge the exhaust ports at the bends by grinding at the valve-guide boss and the opposite port wall as shown at C. Use carburettor needles as for Tuning Condition No. 3.

Warning: When carrying out alterations to the shape of the valve ports, the responsibility for any damage that may occur must rest with the owner or the person authorizing the alteration.

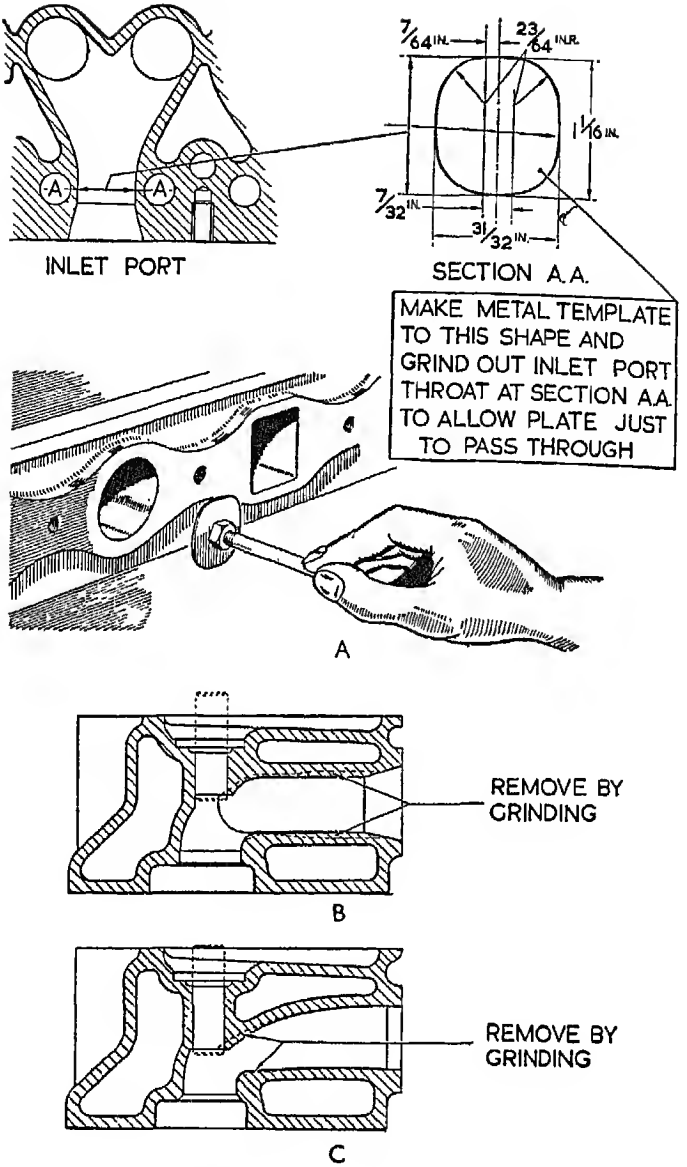
Tuning Condition No. 5. A special tuned exhaust system is available which will give an increase of some 2 to 3 b.h.p. according to the Tuning Condition it is used with. It may be used with any of them. The system consists of:

Front manifold	Part No. AHA5448
Exhaust pipe	,, ,, AHA5449
Silencer assembly	,, ,, ARA98
Clip (2 off)	,, ,, AHA5450

Additional Special Items

Rear Axle. A selection of differential assemblies is available for the Austin-Healey Sprite. With one or other of them it should be possible to obtain a ratio combination suitable for most competition purposes.

Cooling System. Where sustained maximum speeds are required,



Tuning Instructions for the Sprite

A. Inlet port template
B. Section through the inlet port
C. Section through the exhaust port

the engine thermostat can be replaced with an outlet blanking sleeve, Part No. 11G.176, to ensure the maximum flow of coolant to the engine at all times.

Road-wheel Balance. The original degree of wheel balance may be affected by tyre wear, cover and tube repairs or tyre removal and damage to the road wheels themselves. Balance may require rechecking statically and dynamically every few thousand miles, depending entirely on the conditions under which the car has been operating. Use the tyres in the best condition, or those with an even tread wear, on the front of the car. Balancing a tyre having flats or uneven wear is not usually very successful.

The following items of special equipment are also available for the Austin-Healey Sprite:

Disc Brakes. These are for the front wheels only and are of Girling manufacture. During the conversion, the rear brakes are increased in diameter to 8 ins. The wire wheels used in conjunction with the disc-brake conversion are of Dunlop manufacture.

Twin Exhaust. This is a complete exhaust system in which cylinders 1 and 4 feed into one pipe and cylinders 2 and 3 into an additional pipe. A power output increase of about 5 b.h.p. is obtained.

Austin-Healey '3000'

The Braking System

Girling calliper-type disc brakes are fitted to the front wheel hubs. Each brake consists of two carriers to which friction pads are bonded. *The system is self-adjusting in operation.*

The rear brakes are of the single leading-shoe type with sliding shoes which ensure automatic centralization in operation. Manual adjustment is provided by means of a wedge-type adjuster. (Proceed as for Austin-Healey '100-Six', see page 104.)

Front Brakes: Replacing Friction Pads. When wear has reduced the thickness of the pads to approximately $\frac{1}{8}$ in. (3·18 mm.) they must be renewed. Under no circumstances should a pad be allowed to wear below $\frac{1}{16}$ in. (1·59 mm.).

1. Jack up the car and remove the road wheels.
2. Remove the spring clips locking the retaining pins in position and draw them back. Pull out the friction pad assemblies.
3. Clean down the callipers and inspect for fluid leaks.
4. Push in the pistons to the bottom of the cylinder bores with a suitable lever.
5. Slip in the new pads and locate them in position with the retaining pins and secure with the spring clips.
6. Press the brake pedal hard once or twice to settle the hydraulic system.

Removing a Calliper Unit.

1. Unscrew the brake pipe union nut in front of its support bracket, disconnect and blank off the pipe.
2. Remove the two nuts securing the brake hose support bracket and remove the bracket.
3. Unscrew the two calliper retaining bolts and remove the calliper assembly complete.

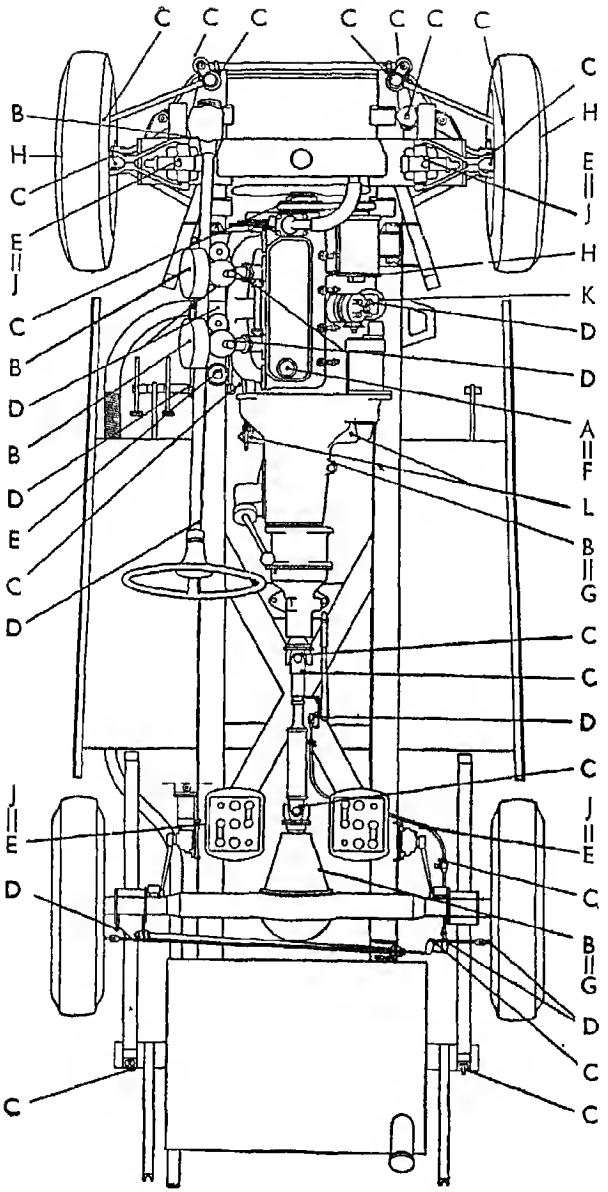
Replacement of a calliper unit is the reverse of the above procedure.

Fault Diagnosis (Disc Brakes)

1. Brakes grab or pull to side	Disc out of true Calliper loose Pad loose in calliper
2. Dragging brakes	Excessive pad wear Pressure build up in fluid supply
3. Brakes inefficient	Disc out of true Incorrect grade of lining pad

APPENDIX

LUBRICATION CHARTS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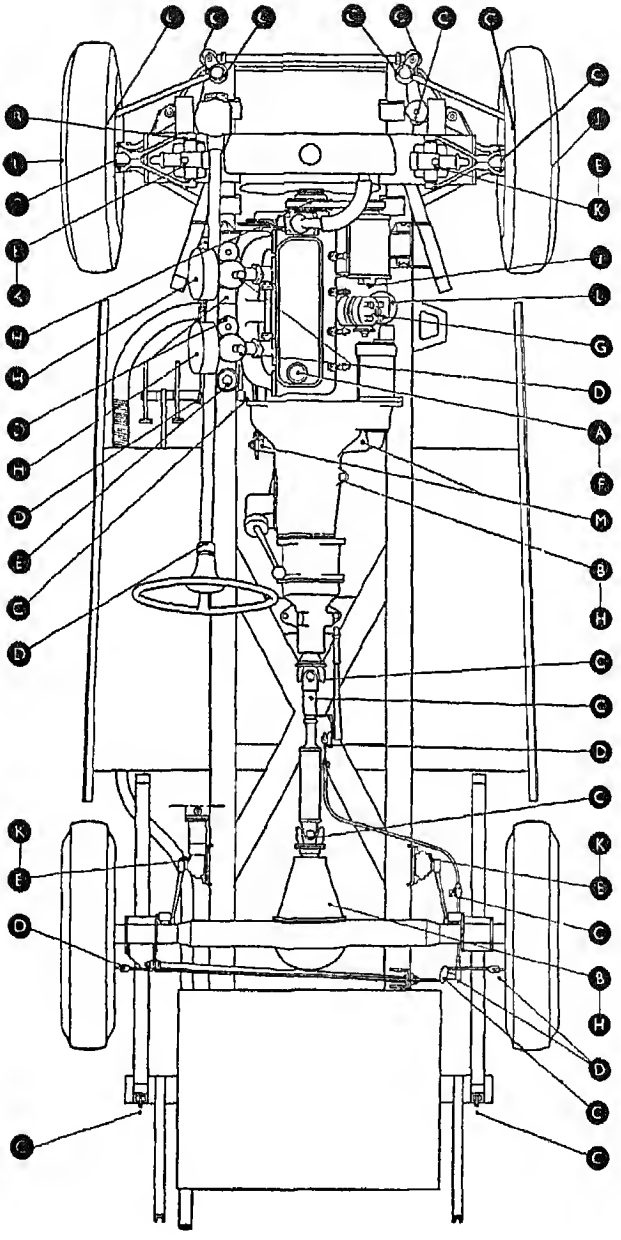
Austin-Healey 'Hundred' BN1

REGULAR ATTENTIONS

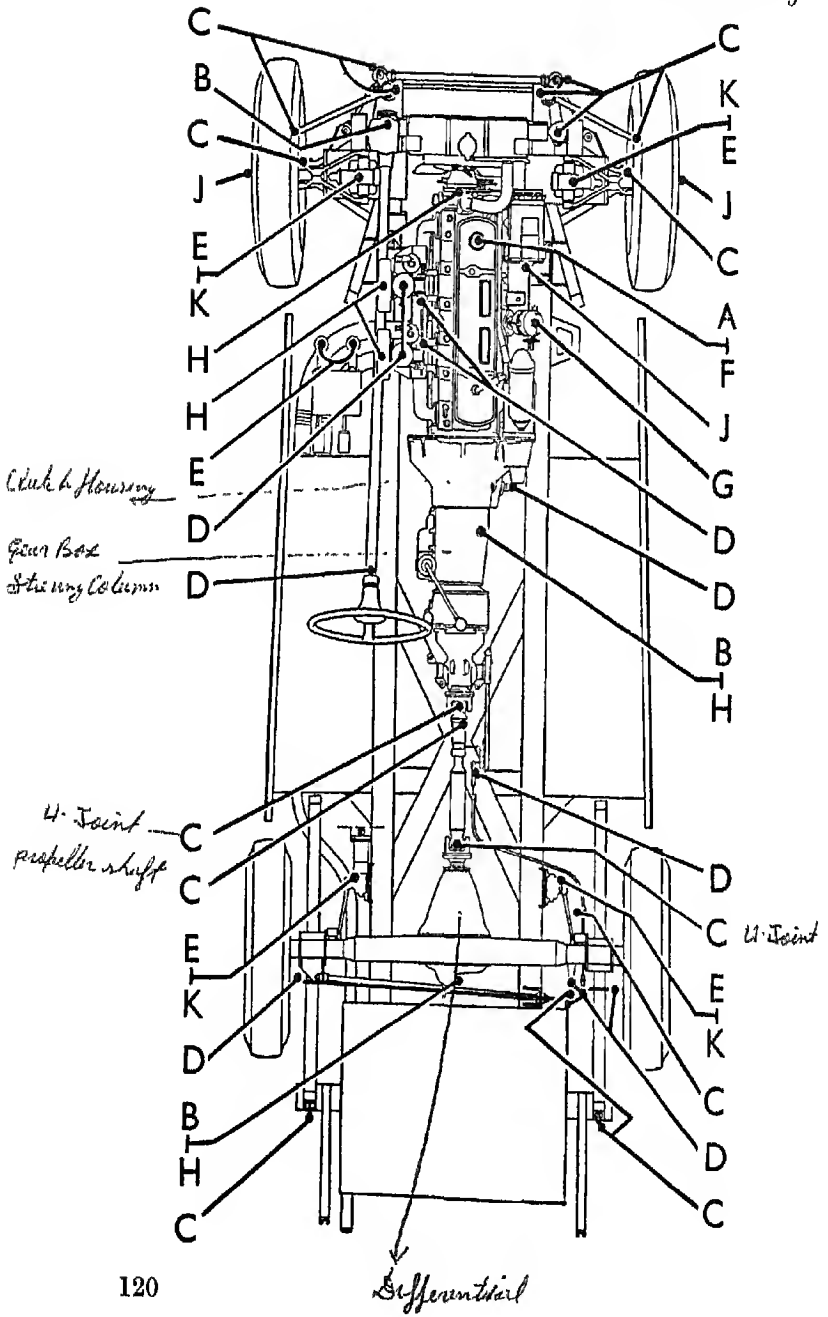
		DAILY
Oil	A	Engine-oil reservoir, check level.
		1,000 MILES (1,600 kms.)
Oil	B	Gearbox and overdrive, top-up if necessary. Rear axle, top-up if required. Steering box, top-up. Air cleaner, re-oil.
Oil Gun	C	Propeller shaft bearings and splines (3). Swivel axles (4). Lower suspension joints (2). Steering connections (6). Steering idler. 1 filler plug. Shackle pins. Rear end of rear road springs (2). Clutch and brake pedals pivot lever (1). Brakes balance lever (1), rear flexible cable (1). Water pump.
Oil Can	D	Steering-column felt bush. Handbrake and clutch pedal linkages. Carburettor control joints. Carburettors, replenish damper assembly oil reservoir. Distributor automatic advance, cam end drive shaft bearings, cam.
Examine	E	Brake fluid supply tank, inspect and refill to correct level. Shock absorbers, check for leaks.
		3,000 MILES (5,000 kms.)
Oil	F	Engine, drain and refill oil reservoir.
		6,000 MILES (10,000 kms.)
Oil	G	Gearbox and overdrive, drain and refill. Rear axle, drain and refill.
Grease	H	Front hub. Dynamo bearings with H.M.P. grease.
Examine	J	Shock absorbers, top-up.
		9,000–12,000 MILES (15,000–20,000 kms.)
Oil	K	Engine filter, renew element.
Oil Gun	L	Clutch-operating shaft (2).
Grease		Speedometer and tachometer drives.



Austin-Healey 'Hundred' BN2

REGULAR ATTENTIONS

		DAILY
Oil	A	Engine-oil reservoir, check level.
		1,000 MILES (1,600 kms.)
Oil	B	Gearbox and overdrive, top-up if necessary.
		Rear axle, top-up if required.
		Steering box, top-up.
Oil Gun	C	Propeller shaft bearings and splines (3).
		Swivel axles (4). Lower suspension joints (2).
		Steering connections (6).
		Steering idler. 1 filler plug.
		Shackle pins. Rear end of rear road springs (2).
		Clutch and brake pedals pivot lever (1).
		Brakes balance lever (1), rear flexible cable (1).
Oil Can	D	Steering-column felt bush.
		Handbrake, brake and clutch pedal linkages. Carburettor control joints.
		Carburettors, replenish damper assembly oil reservoir.
Examine	E	Brake fluid supply tank, inspect and refill to correct level.
		Shock absorbers, check for leaks.
		3,000 MILES (5,000 kms.)
Oil	F	Engine, drain and refill oil reservoir.
Oil Can	G	Distributor automatic advance, cam end drive shaft bearings, cam.
		6,000 MILES (10,000 kms.)
Oil	H	Gearbox and overdrive, drain and refill.
		Rear axle, drain and refill.
		Water pump.
		Air cleaners, re-oil.
Grease	J	Front hub.
		Dynamo bearings with H.M.P. grease.
Examine	K	Shock absorbers, top-up.
		12,000 MILES (20,000 kms.)
Oil	L	Engine filter, renew element.
Oil Gun	M	Clutch-operating shaft (2).
Grease		Speedometer and tachometer drives.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C
U-Joint
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Differential

Austin-Healey '100-Six'

REGULAR ATTENTIONS

DAILY

Oil	A	Engine sump. Check oil level and top-up if necessary.
Water		Radiator. Check level and top-up if necessary.
Air		Check tyre pressures.

1,000 MILES (1,600 kms.)

Oil	B	Gearbox, overdrive, rear axle and steering box. Check oil levels and top-up if necessary.
Oil Gun	C	Propeller shaft universal joints and sliding splines (3).
		Swivel axles (4).
		Suspension fulcrum pins (2).
		Steering connections (6).
		Steering idler.
		Rear spring shackle pins (2).
		Brake balance lever (1).
		Rear flexible brake cable (1).
Oil Can	D	Handbrake, clutch and carburettor control linkage joints and steering column bush.
		Carburettor damper assembly reservoir with S.A.E. 20 oil.
Examine	E	Brake and clutch fluid reservoir levels. Top-up if necessary.
		Shock absorbers. Check for leakage.
		Brakes. Adjust if necessary.
		Battery. Top-up.

3,000 MILES (5,000 kms.)

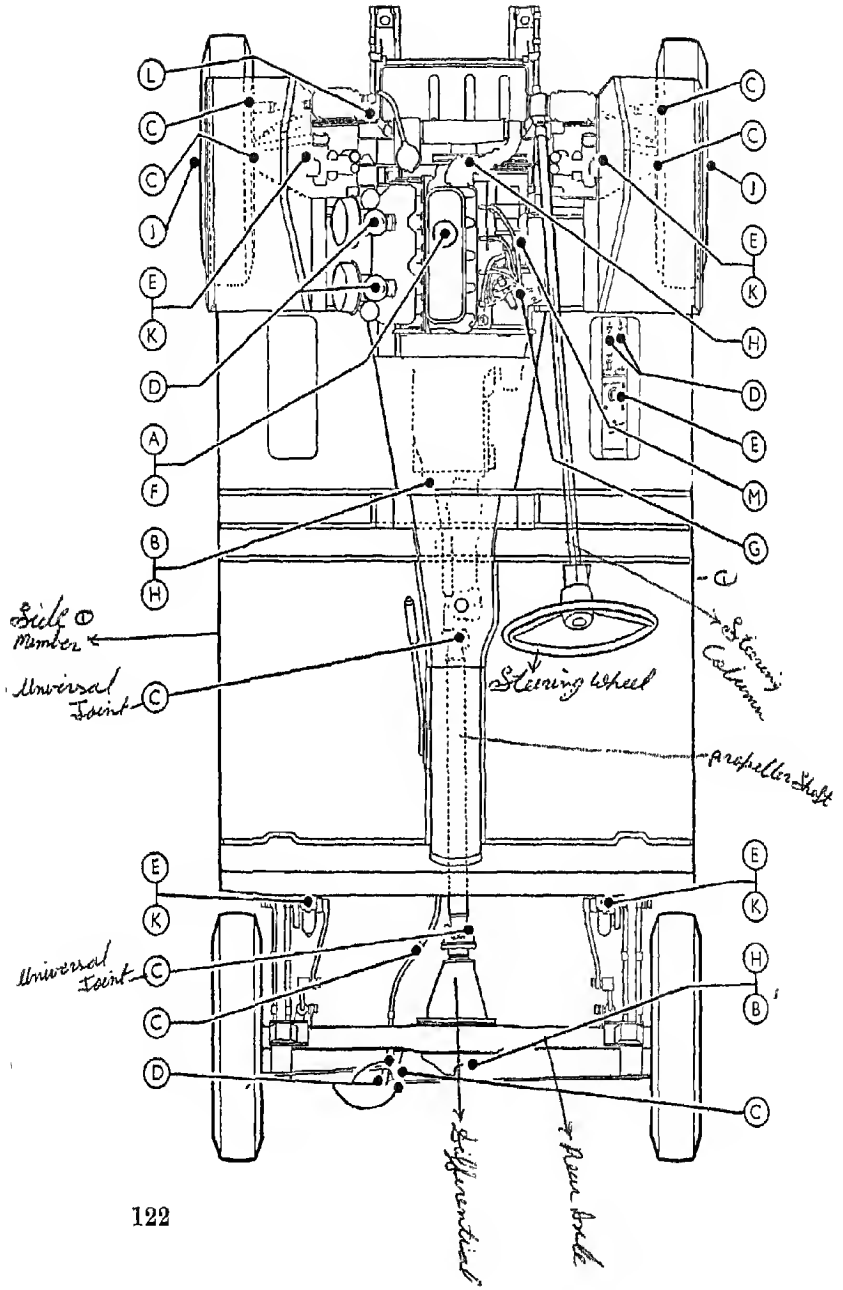
Oil	F	Engine sump. Drain and refill.
Oil Can	G	Distributor.
Grease	G	Distributor shaft lubricator. Give one full turn. Refill every 12,000 miles.
Examine		Fan belt. Check tension and adjust if necessary.
Adjust		Valve clearances.
Clean		Sparking plugs and contact breaker points and adjust gaps.

6,000 MILES (10,000 kms.)

Oil	H	Gearbox, overdrive and rear axle. Drain and refill. Water pump.
		Air cleaners. Clean and re-oil.
Oil Can	J	Generator bearing with S.A.E. 30 oil.
Grease	J	Front hubs.
Examine	K	Shock absorbers. Check levels and top-up if necessary.
Renew		Engine-oil filter.
Clean		Fuel system.

12,000 MILES (20,000 kms.)

Grease	Speedometer drive cable.
Clean	Cooling system by reverse flushing.
	Engine sump.
	Generator and starter commutators.
Renew	Sparking plugs.
Examine	Hubs and steering for wear.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Side Member
Universal Joint
Steering Wheel
Steering Column
Propeller Shaft
E
K
Universal Joint
C
C
D
E
K
H
B
C
Differential
Rear Axle

Austin-Healey Sprite

REGULAR ATTENTIONS

DAILY

Oil	A	Engine sump. Check oil level and top-up if necessary.
Water		Radiator. Check level and top-up if necessary.

WEEKLY

Air		Check tyre pressures.

1,000 MILES (1,600 kms.)

Oil	B	Gearbox and rear axle. Check oil levels and top-up if necessary.
Oil Gun	C	Propeller-shaft universal joints.
		Swivel axles.
		Front suspension.
		Steering tie-rod ball joints.
		Rear spring shackle pins.
		Brake balance lever.
Oil Can	D	Handbrake, and carburettor control linkage joints.
		Carburettor damper assembly reservoir with S.A.E. 20 oil.
Examine	E	Brake and clutch fluid reservoir level. Top-up if necessary.
		Shock absorbers. Check for leakage.
		Battery. Top-up.

3,000 MILES (5,000 kms.)

Oil	F	Engine sump. Drain and refill.
Oil Can	G	Distributor.
		Bonnet lock.
Examine		Fan belt. Check tension and adjust if necessary.
Clean		Sparking plugs and contact-breaker points and adjust gaps.

6,000 MILES (10,000 kms.)

Oil	H	Gearbox and rear axle. Drain and refill.
		Water pump.
		Air cleaners. Clean and re-oil.
Grease	J	Front hubs.
Examine	K	Shock absorbers. Check levels and top-up if necessary.
Renew		Engine-oil filter.
Clean		Fuel system.

12,000 MILES (20,000 kms.)

Oil Gun	L	Lubricate steering rack with S.A.E. 90 Hypoid oil.
Grease	M	Generator bearing.
		Speedometer drive cable.
Clean		Cooling system by reverse flushing.
		Engine sump.
Renew		Generator starter commutators.
		Sparking plugs.
Examine		Hubs and steering for wear.

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